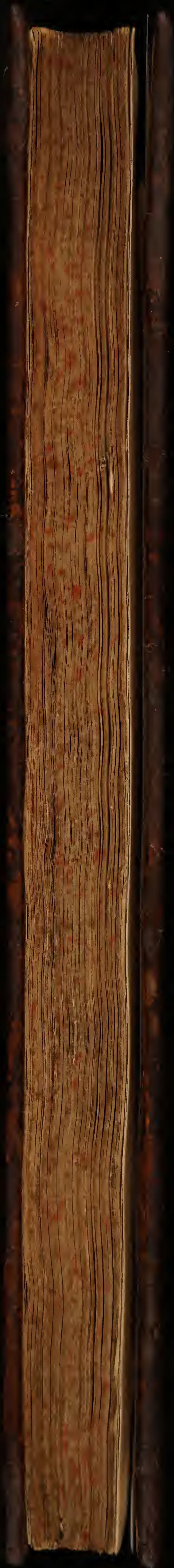


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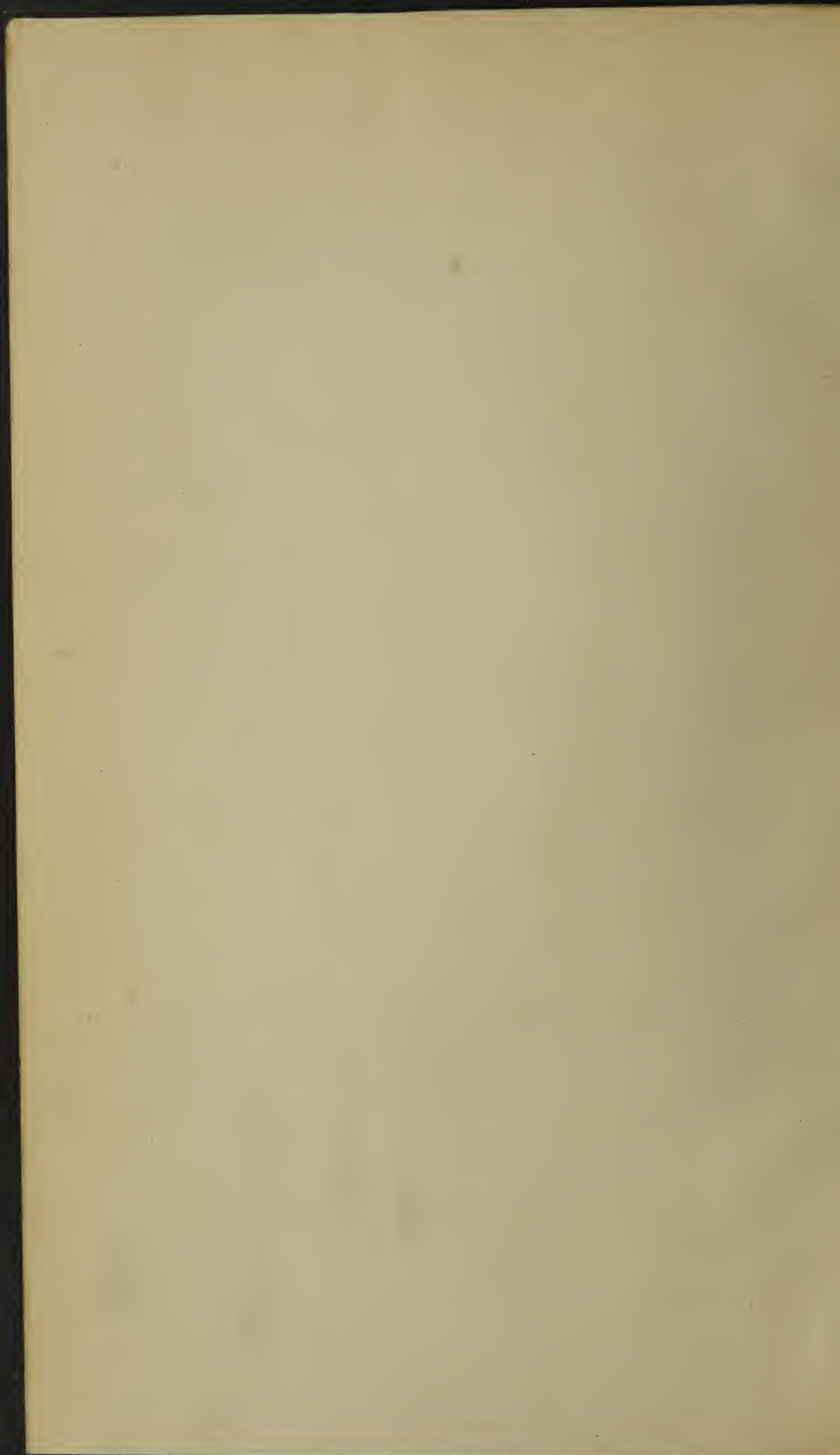






1784/2

D. 142





Joannes Browne
Regius Chirurgus Ordinarius.
Ætatis suæ 54. Año. Dñi 1696.

Myographia Nova :

O R, A

Graphical Description

Of All The

MUSCLES

I N

HUMANE BODY,

As they arise in Dissection :

Distributed into Six Lectures ;

At the Entrance into every of which,

Are demonstrated the *Muscles* properly belonging to each *Lecture* now in General Use at the *Theatre* in *Chyrurgeons-Hall, London* ; And Illustrated with One and Forty Copper Plates, Accurately Engraved after the Life, with their Names on the *Muscles*, as much as can be expressed by *Figures* : As also, with their Originations, Insertions, Uses, and divers New Observations of the Authors, and other Modern Anatomists.

T O G E T H E R,

With an Accurate and Concise DISCOURSE of the H E A R T, and its Use ; As also of the CIRCULATION of the B L O O D, and the Parts of which the Sanguinary Mass is Made and Framed. Written by the late Learned Dr. *Lower*.

Digested into this New METHOD,

By the Care and Study of J O H N B R O W N E, Sworn Chyrurgeon in Ordinary to the K I N G's Most Excellent Majesty, and Late Senior Chyrurgeon of His Majesty's Hospital of *St. Thomas, Southwark*.

——— *Si quid novisti, rectius istis
Candidus Imperti ; si non, His utere Mecum.*

L O N D O N,

Printed by *Tho. Milbourn*, for the A U T H O R, 1 6 9 7.

27100



TO THE
King's Most Excellent Majesty,
William III.

By the Grace of God, of
England, Scotland, France and Ireland,

K I N G,
Defender of the Faith, &c.

DREAD SIR,

AS there is no Study which affords that Variety of Discoveries towards the Publick Good and Preservation of Mankind, as doth this of *Anatomical Disquisitions*, so neither is there any Subject which seems to receive a readier Warmth in the Sacred Bosome of Princes, than that which presents to them the Divine Wisdom, and admirable Contrivance of the Supreme Architect in thus framing Man, and the well disposing of all his Parts into that excellent Order, Symmetry and Figure, we see they obtain; the true understanding whereof, being not only of great Advantage towards our knowing this Our Divine Benefactor, but of our selves also, who are the *Wonderful Works of His Hands*.

This *Treatise* of mine, (GREAT SIR,) which humbly presents its self to Your Sacred Hand, is but a Part of this Great Study, or rather a bare Representative of all the *Muscles* in Humane Body, Engraved

To the KING

graved and Described in Minuiture, with their faint Lines and thin Shadows, scarce able to bear their own Names and Inscriptions, whilst in Your *Sacred Majesty* are illustrated their Divine Movings, and Glorious Actings, not only in the Noblest Sphere, but in their Truest Life, and Highest Perfection.

And since from Your Immense Goodness and Royal Favour, We Your Subjects, at this day derive both Our Peace, and Our Safety, whilst Our *Neighbouring Nations* are made sufficiently sensible of the direful Effects of a Bloody War abroad, How ought We dayly to implore the Great Monarch of Heaven's Benediction for Your *Sacred Majesty*, that He would always preserve and secure You under the Wing of His Protection, and that You may dayly see Your Enemies dispersing themselves like scattering Clouds crumbling into Atomes?

As all Your Actions, SIR, are as so many Laurels encircling Your Illustrious Name; so, when Greatness its self shall be shrivell'd into nothing but a cold Remembrance, Your Princely Valour, and Your Glorious Atchievements, must make future Ages for ever acknowledge You the Greatest General that ever liv'd in this.

That Your *Sacred Majesty* may never want a Divine Guard to defend You abroad, nor the Hearts of your Subjects to secure You in Safety in your Royal Throne at home, is the humble Desire, and dayly Prayer of,

YOUR MAJESTY's

Loyal Subject, and most

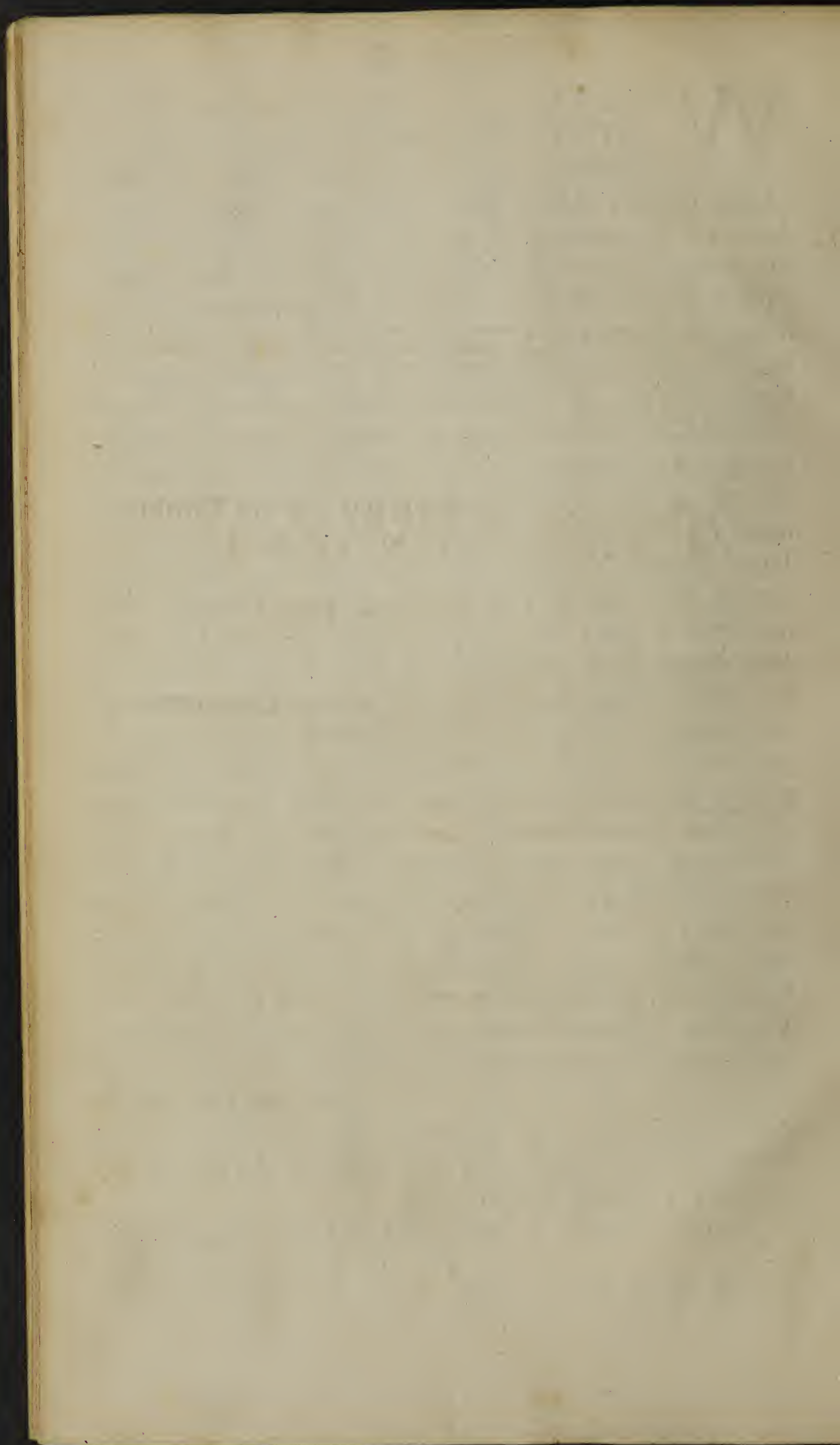
Obedient Servant,

J O H N B R O W N E.

William R.

WILLIAM the Third, by the Grace of God,
KING of England, Scotland, France and
Ireland, Defender of the Faith, &c. To all Our
Loving Subjects, of what Degree, Condition or Quality soever,
within our Kingdom and Dominions, Greeting, Whereas it hath
been manifested unto Us, that Our Trusty and Well-beloved
JOHN BROWNE, Esq; one of Our Chyrurgeons in Or-
dinary, hath not only with great Art, but at the Expence of
much time, Delineated, Described, and Accurately Engraved in
Copper Plates, A Graphical Description of all the
MUSCLES in Humane Body; which Performance
of his, is to Our great Liking and Satisfaction: So that We
may express Our Approbation thereof, and give him all due and
ample Encouragement for the future, We do hereby signifie Our
Royal Pleasure, Granting unto the said JOHN BROWNE,
the sole Priviledge of Printing the aforesaid Treatise, with
its Copper Figures Accurately Engraved after the Life, with
their Names on the Muscles, &c. And strictly Charging, and
Forbidding all our Subjects, to Copy or Counterfeit any of the
Sculptures or Descriptions, either in great or small, or to im-
port, Buy, Vend, Utter or Distribute any Copies, or Exam-
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of Fifteen Years ensuing the Date of this Our Licence and
Prohibition, without the Consent and Approbation of the said
JOHN BROWNE, his Heirs, Executors, or Assigns, as they
and every of them so offending, will Answer the contrary at
their utmost Perils: Whereof, as well the Wardens and
Company of Stationers of Our City of London, the
Farmers, Commissioners and Officers of Our Customs,
as all other Our Officers and Ministers whom it may con-
cern, are to take particular Notice, That due Obedience be
given to this Our Royal Command. Given at Our Court at
Kensington the 25th. Day of October, 1696. in the
Eighth Year of Our Reign.

By His MAJESTY's Command,
WILL. TRUMBULL.



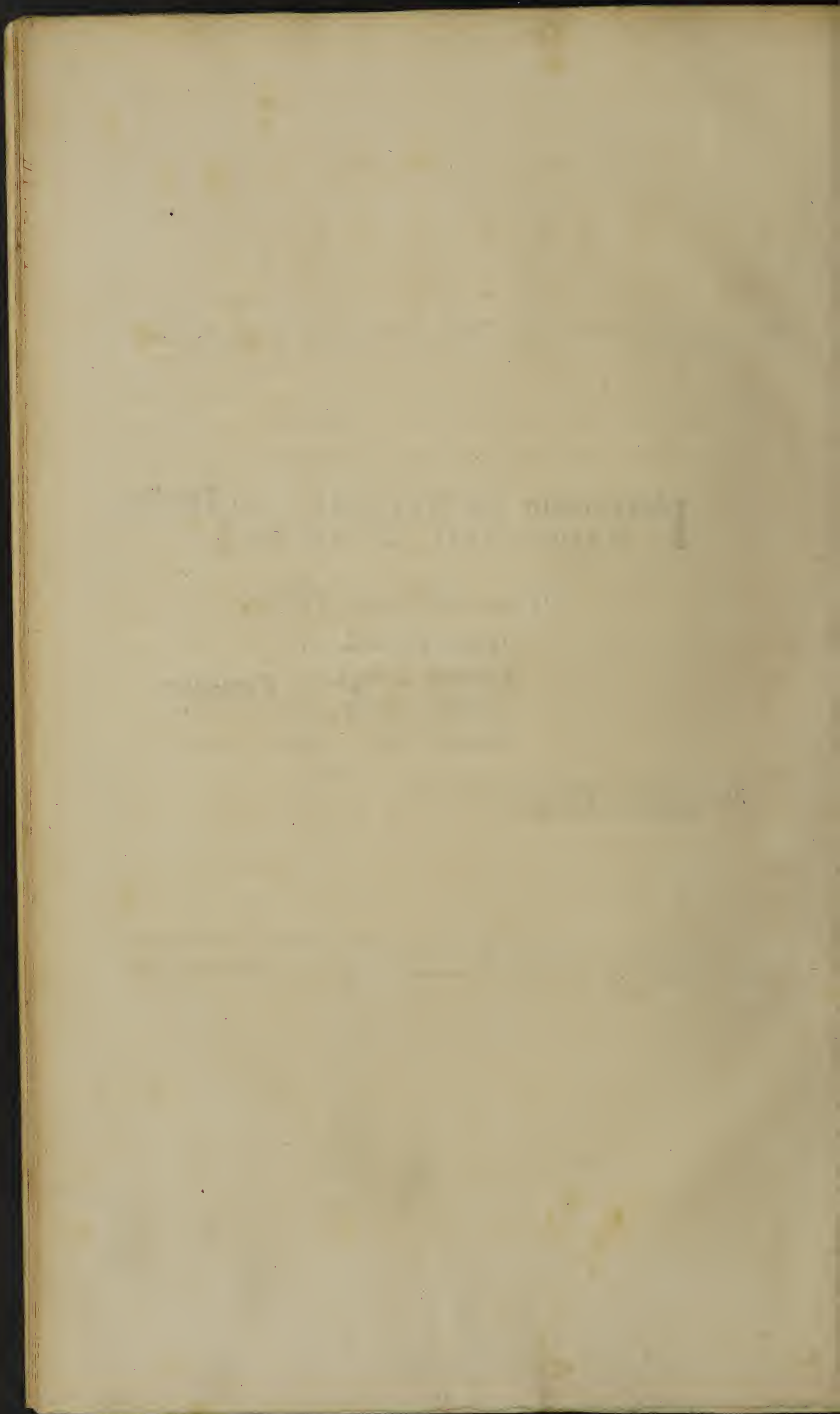
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Thomas Millington, Præses,

*Thomas Burwell,
Richard Torlesse,
William Dawes,
Thomas Gill,*

}
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|
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|
Censores.

Datur ex Ædibus Collegii 9 die *Aprilis*, 1697.
Nostri in Conciliis Censoriis.



To his GRACE,
WILLIAM

Duke of Bedford, Marquess of Tavistock, Earl of Bedford, Lord Russell, Baron Russell of Thornhaugh, Lord Lieutenant, and Custos Rotulorum of the County of Middlesex, Lord Lieutenant of the Counties of Bedford and Cambridge, Knight of the most Noble Order of the Garter, and One of his Majesties most Honourable Privy Council.

May it please Your Grace,

AS in the *Macrocosm* or greater Orb, The Sun doth diffuse its Light and Warmth to all Insects and Vegetables: And as the Ocean sends forth it supplies by its secret Crannies and Rivulets to the lesser streams, and each of these are seen, to pay back their Fealties by their reflux; whereby the Earth is kept up, and preserved in its due Order and Beauty: So in Man (the *Microcosm*) is treasured up the lively Streams of Blood and Spirits, by which the whole Theatre of the Body is preserved and continued.

Nor are the *Arteries, Veins, Nerves, Muscles, &c.* of greater Use and Service to the Body natural, than is your Grace in the Body Politick; since Princes and Noblemen have been in all Ages esteemed as the Sacred Heads, and Illustrious Fountains of Learning and Wisdom.

And hence it is, MY LORD, That Men of Our Art, as well as those of other Professions, do take Encouragement to lay out our selves for the General Improvement of Knowledge, for the Publick Good of Mankind.

It being by Your Auspicious Generosity, that our Care and Studies, are taught how to arrive at some useful Maturity in that sort of Learning, in which Our Industry

To the Duke of Bedford.

hath been thus encouraged by Your Graces Care and Protection.

MY LORD, as you are not only the Illustrious Heir of the Fortunes, and incomparable Merit of Your Ancesters, who have been ever eminent for Vertue and Prudence; so if the Actions of Noblemen may be granted the Subject of History, Your Graces Loyalty to your Prince, and Your Service to your Country, besides your endearing Civility to those who have had the Honour of knowing you, will always entitle you, Your Princes Favourite, a Support of the Government, an Example to your Equals, and the Admiration of your Inferiours.

As your Grace therefore among your other Vertues, hath always been esteemed a great Admirer of Industry, and a true Encourager of all Arts and Sciences: This *Graphical Discourse of the Muscles* (next to his Majesty) doth humbly present its self to your Graces impartial Censure; wherein I do not presume from your Lordship, that Favour which the best of men will not, or the greatest cannot give; that your Grace will please to protect any Errors (which may happen in my Book) against the Force of truth; but only where the Great, and the Wise do usually allow their Approbation: I may have the Honour of yours; and from thence take this publick Occasion to let the world see, how much I am obliged to your Graces Generosity, and Goodness, in thus vouchsafing me your Umbrage to the better part hereof, and your forgiveness to the rest.

I Am,

YOUR GRACES

Most Faithful, and

most Obedient Servant

JOHN BROWNE.

The Preface.

KIND READER,

THere is nothing affords greater Light into the *Mysterious Recesses of the Supreme Architect*, than the true Knowledge and Understanding of the Frame, and admirable Structure of the parts of Humane Body. Man being made as a Stately Pile finely built up, and curiously wrought into variety of parts, wonderfully put together, in due order, frame and symmetry.

In his upper sphere, are planted all the Faculties, viz. his Sense, Will, Reason and Understanding, as in their proper Repositories, displaying and diffusing of their benign Emanations to the other parts of the Body; and these in reciprocal return, paying back their Overplus to them, as to their Center and Head, whilst the remaining part thereof is conveyed to parts assigned for receiving the same; upon the tracing of which, we come to learn and understand their principal Uses and Offices, as to their Primary Ends and Perfections.

In Man's upper Region:

Whoever therefore hath been much conversant in dissecting of Bodies, cannot deny, but that Anatomy is well worth his Care and his Study, it very much conducing towards the knowing of our Wise CREATOR, and of our selves also, who are the Wonderful Works of his Hands; by which are shewn his unspeakable Wisdom and Power, in thus forming Man with that Harmony of similar and dissimilar Parts.

The Benefit of Anatomy.

By this also are found out all the Connexions of the Bones, which are framed and composed as the Pillars

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of

The Preface.

of the Body, and the Centers of Motion; how they are formed into Joynts, or Articulations, mutually bound together by Ligaments, and enlarged by Cartilages; how they are cover'd with Membranes, and cloathed with Muscles.

There is nothing more certain, than that by careful and curious Dissections, great Discoveries have been made in the Body of Man, much improving the Art of Physick, but much more ours of Chyrurgery; by the which we come to know the various Differences of Fibres, their Variety of Positions, and Diversity of Situations.

It's by this Art alone, that all the Meanders and secret Lodgments of the Heart have been found out, by whose Streams of Warmth and Life, the Vital Blood is dispers'd and sent through its Arteries, as through so many hollow Tubes into all the Parts of the Body, made for keeping up our gentle Flame of Life, which is more fully Treated of in the Appendix, at the End of this my Muscular Discourse.

By this the Lower Belly also, with all its Parts, both Inwards and Outwards, are discovered to us, with their Uses and Offices.

And because our present Treatise doth more nearly relate to the Muscles, than any other Part of Anatomy, We shall first enquire what Parts are more properly allowed belonging to a Muscle, and then declare to you their true Uses, and for what Offices they were at first design'd by Nature.

Whence it
takes its
Name.

A Muscle by the Greeks hath its Name of Μῦς, ἀπὸ τῆς μύειν, from its Contracting Faculty, or from the Similitude that some Muscles do carry with an excoriated or flead Mouse, both as to its Head, Venter and Tayl; tho' others as readily say, that it doth

The Preface.

doth not much irrefemble the Muscle-Fish, as Diemerbroeck writes in his fourth Book, Page 492, de Musculis.

As every Muscle doth seem as a distinct Body, A Muscle is a distinct body. so hath it allowed it a distinct Coat, spun out of many Nervous and Tendinous Fibres, these carrying in them a Correspondence with those of the Body of the Muscles, and their Terminations; so that any one particular Muscle may not irrationally be allowed a System of various small Fibres closely wove together, they only having a differency of Parts in their Middle, from that of their Extremities.

As to its Structure and Make, it is granted by Its Structure. all Anatomists to be an Organick Body, framed out of solid and liquid Parts; towards the true Composition of which, these following are unanimously granted to be allowed it, viz. Membranes, Arteries, Veins, Lymphaducts, Glands, Fleshy and Nervous Fibres; every Muscle moreover having given it a proper Membrane, to keep it from adhering to its Neighbouring Parts, so made on purpose for keeping them in their proper Places, and also for their greater Security and Defence.

That we may proceed in this our Preface in that Method Nature at the first framed the Parts, we are first to Consider the Outward Parts of the Body, that we may with more Ease make a clearer way to the Muscles themselves; and here we shall find, upon tracing the Parts aright, That our two first useful Coverings which Nature hath Cloathed the Body with, do first present themselves to our view, the one commonly call'd Membrana Adiposa, and the other Membrana Carnola; the first taking its Name from its Fatty Substance, which indeed is no otherwise

The Preface.

than a Muscular Expansion, covering the Fat lodged immediately under the Cutis, as with a Garment, which being plentifully stockt with Nervous Fibres, do bestow upon it an exquisite Sense.

The other Membrana Carnosa being planted between the Adiposa, and the Muscles of the Body, as a Medium between both, is allowed to cover our Muscles, as our Garments do cover our Bodies, keeping the Skin in its proper place; And this we have from Nature her self, who hath made this part partly of Nervous Fibres, some whereof are sent into it with straight Lines running lengthways, others with Circular Lines, marching Horizontally, and others with Bevil Lines, making their Oblique Progress therein, as Dr. Collins well observes. So that these intersecting each other, do hereby constitute and frame a fine Membrane or Covering for the Muscles; whose Fibres being as so many minute and round Bodies, cannot be so closely put together, but that there must be some Interspaces left between them, which Nature supplies, and fills up with a concrete Animal Liquor adhering to the sides of the aforesaid small Fibres, working it into a plain, and so consequently more easie to its Neighbouring parts, as Borellus worthily observes.

The common Coat of the Muscles.

The common Coat of the Muscles, is a Membranous Contexture, made and wrought up of many Nervous Fibres, finely spun, and closely interwoven together, framing a Smooth and Transparent Membrane immediately enwrapping the Muscles of the Body. Having presented the Reader with the Membranes, we next arrive at the Vessels given to the Muscles. viz. Arteries, Veins, Nerves, Lymphaducts and Glands.

Each

The Preface.

Each Muscle hath given it Arteries, which are framed as so many Tubes or Concave Bodies, formed out of many Circular Fibres, running thro' their Trunks, conveying a Vital Liquor in them, by which the Muscle is both enlivened and kept warm, and the Blood being prest forwards by these, doth communicate of its Salutiferous Nectar to all the parts of the Body.

Arteries are allowed it.

Its Veins it receives into it, are as its proper Sanguiducts, which do serve to conveigh and bring back the Blood from the Circumferential Parts to the Center, from the extream parts of the Body to the Heart, which first being received into the Capillaries, is afterwards let into the greater Branches warming the parts all along in its Passage.

It hath Veins

Its Nerves it takes into it, are the Product of Spermatick Threads, spun into a very fine Contexture, in which are lodged the Nervous Liquor and Animal Spirits, they being framed as the useful Conveyancers and Dispencers of the same Liquors from the Brain to the Muscles; by whose Elastick Spirits, the Muscles being cherished and refreshed, they become Tense and Plump, and their fleshy Fibres hereupon are seen to contract; upon which Contractions also, the different Motions both of the Trunk, and the Artus, are exercised and employed, the Bodies of the Muscles being herewith endewed and liquored

Its Nerves.

It takes its Lymphaducts into it, to keep it moist; and these are as so many transparent Contextures formed out of the Vessels, and framed out of numerous diminutive Fibres, closely set together, looking like parts all of a peice, uniform in Substance, and transparent to View, they hanging

Its Lym^{ph}aducts.

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upon

The Preface.

upon the Coats of the Vessels, as so many small Tubes, covered with a thin skin fill'd with Valves, which when broken, a transparent Liquor is seen to issue thence.

Its Glands.

The Glands allowed it, are small Bodies spun out of numerous diminutive Vessels, closely intermixing themselves with one another; and these are framed as so many Repositories to receive and convey a different Liquor, both to the Nervous Juyce and Animal Spirits, which by succession of Matter being driven through the proper Passages, is first prepared in these, and afterwards sent from them by divers small Tubes, through the Carnous Fibres of all the parts of the Body, as Bolton ingeniously observes.

Fleshy and
Tendinous
Fibres.

The Fleshy and Tendinous Fibres are the most considerable Parts which do essentially make up the Body of the Muscle; Galen indeed saith, that a Tendon is a dissimilar Body, and a Contexture made from Ligamentary and Nervous Fibres running into one Body, and the Nerve entering the Muscle, being branched into many minute Fibres, intermixing themselves with diverse Ligamentary Fibres, doth both embrace and embody them; and these running along the Tendon even to its Termination, doth there frame a strong Tendon: Which Opinion, both Bauhine, Silvius, Diemerbroeck, and some others, do seem to favour.

Nature having sent into these Parts, some concreted Particles of Blood (commonly called Flesh) planted in the Interspaces of the Tendinous Fibres, do stuff them up, and keep them from breaking; for the stronger, and the more fleshy the Muscle is, as Diemerbroeck observes, the less subject it is to break, or rend, in comparison of that which is thin and emaciated.

Now

The Preface.

Now whereas there are no *Fleshy Fibres* but what are furnished with *Blood Vessels*, and *Nervous Fibres* branching themselves through all the parts of the *Flesh*, (*Flesh* its self being nothing else than a curious *Contexture* formed out of the various *Ends of Vessels*) among which, neither *Arteries*, *Veins*, or *Lymphaducts*, can pretend to have any share of motion, they being at the first framed only as so many *Tubes* or *Trunks* to import and export the *Blood* and *Lympha*; Hence therefore the *Motion* of the *Muscles* must necessarily be granted to be in the *Tendinous Fibres*, and not in the *Fleshy Fibres*, which are nothing else but a soft reddish *Substance*, facing and interlining the *Interspaces* of the *Sanguiducts*, whilst the *Nervous* and *Tendinous Fibres*, which do not make that part of the *Body* of the *Muscle*, as do the others which are both larger and more *Fibrous*, ought rather to be esteemed our proper *Instruments* of motion.

No fleshy
Fibres with-
out Blood
Vessels.

The *fluid Parts* of the *Muscle* are allowed *Liquors* of several *Kinds* and *Natures*, as *Blood*, *Nervous Juyce*, and *Lympha*; the first giving it *Life*, the second *Sense* and *Motion* to the *solid parts*; and the third allowed useful for diluting the *Chyle*.

The fluid
Parts of the
Muscle.

The *Blood* being one of our *Principal Liquors*, for the refreshing and reviving the whole *Body* with *Life* and *Warmth*, carrieth in it a *Red Crassament*, (of which the more *Fibrous* and thicker part having once lost its due *Circulation*) doth soon coagulate; this *Liquor*, I say, being formed out of *Sulphureous* and *Saline Particles*, well digested by *Heat*, doth in process of time become tinged with a reddish *Colour*, and this plumping up the *Body* of the *Muscle*, which was first of a quite different *Colour*, as being whi-

What Blood is

The Preface.

tish, and produced out of seminal Liquor, in process of time does hereby arrive at a deep Red; which Tincture enobling the Body of the Muscle, is produced by the Sweet, Oily, and Saline Particles it takes from the Vital Spirits, much resembling such a Tincture as is usually made from an Infusion of red Roses with Spirit of Sulphur.

Involuntary
Motion.

That the Spontaneous Motion of our Muscles, doth wholly depend on the Will, the very Name it self doth declare; but then that Inspontaneous Motion is quite different from this, is hence apparent, in that, as the Pores of the Brain are dilated according to our Inclinations or Appetites, and the Animal Spirits here making a quicker Flux than ordinary, filling the Fibres with a sufficient quantity of subtile Liquor, which do distend them so as to make a Passage through them; So the Pores, which do lead to the Nerves, serving for Inspontaneous Motion, are so propagated, that they convey and take into them such a convenient Quantity of Animal Spirits, which can give them this their perpetual Motions.

And whereas these Pores are so proportioned, as that they want no share of Organic Motion, which our Instruments of Spontaneous Motion doe require; so also, according to this their Allowance of Animal Spirits, they have no Occasion of being either dilated or contracted, as the others have.

That these Pores do also contain in them such a quantity of Animal Spirits, which are sent into the Glands, is hence made good, in that it is apparent, that upon too great a Quantity of them being sent in thither, the Pulse doth thereupon immediately become stronger, and by this its Exagitation,

The Preface.

tion, it grows both quicker, and more frequent; the which being any wise deprest, the same Pulse upon this Alteration is seen to grow weaker and slower.

And whereas a healthful Pulse doth very much depend on its Reception of a moderate Quantity of these Spirits, and that these do continually make their Entrance into the Nerves, leading into our Instruments of Involuntary Motion, as their quantity are seen to vary, so we easily perceive a greater or a smaller Quantity of this subtile Liquor is prepared in them for the readier Distention of the Fibres of the Muscles. Now, when these Spirits begin to grow low and weak, and stript in a great measure from that Briskness they formerly enjoyed, it must necessarily follow, that a smaller or lesser Quantity of them must enter the Glands, as well as we see upon their Exaltation the same is seen to encrease.

That the Brain (which serves and supplies the Nerves with Animal Spirits serving for Involuntary motion) is like a Cistern full of Spirits, where when Vent is once given, and the Pores opened according to our Appetites, the said Spirits are sent forwards in one constant Course and Running, as both Borellus and Bolton well observe; whereas the Muscles serving to Involuntary Motion being in continual Action, do so continually drain their Store-Houses and Repositories, as that they have been seen many times both flaccid and empty; so as they further conclude, some of these Muscles designed for Involuntary Motion, may in some measure seem to act according to our Wills and Inclinations: So that it lies in our power either to quicken or retard them in their Contractions, tho' not wholly to obstruct them, as the Muscles serving to Expiration; the Reason of

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which

The Preface.

which as Bolton writes, doth proceed from the Pores of the Brain leading to the Nerves, which transmitting of their Spirits to them as to the other Muscles, serving for involuntary motion in a competent quantity; but these Pores being quite different from the other, do contain in them an Organic Motion either to contract or dilate according to our Appetite, and as they sometimes are seen so to close up in Constriction, as that they do deny any further Entrance of the Animal Spirits into them, hereby hindring any more of the Subtile Liquor to penetrate them, which causes a Cessation of any further Contraction of the Muscles, so at other times, they are seen by degrees to assume into them such a quantity thereof (as not being longer able to contain more) they by mere Force, do drive and hurry on the same so into the Receptacles as that they overcome this their restrictive Faculty, so as to break thro' these Muscular Glands, as he elsewhere well observes in his Book.

Falloppius saith, That in Muscular Motion there is a Coordination of Fleshy Particles, running in Oblique Parallel Lines, which inwardly moving do contract the Body of the Muscle; making it tense and rigid, whilst its outward Coat is seen more loose and shrivel'd; which said motion (according to his Opinion) is performed by the Fleshy Fibres.

Galen on the contrary, affirms the Tendinous Fibres to be the principal Organs of Muscular Motion, in his 12th. Book de Usu Musculorum, cap. 3. these being the first Principals, and true Machines of motion, wherefore we allow the Carnous Parts only as its Auxiliaries, not as the Principals of Motion.

Steno

The Preface.

Steno writes, That a Tendon is a Composition of Fleshy Fibres, which being loosely put together do frame the Flesh, but when closely set together do form the Tendon, as he hath it in page 14. of his Book.

We on the contrary do presume to write, that a Tendon is no part made out of Flesh, but rather framed from firm Tendinous Fibres, which are interwoven with numerous Nervous Fibrillae, and that which may naturally confirm this our Opinion is, that the Nervous Fibres do very much differ from the Fleshy Ones both in their Colour, Essence and Consistence; in that it is plainly apparent that the Fleshy Fibres are seen soft and red, whilst the Tendinous and Nervous Fibres on the contrary appear hard and white; So that it needs no farther Explanation to make good, that Muscular Motion must chiefly take its Dependance from these Nervous or Tendinous Fibres, through which the Animal Spirits and Nervous Juyce are sent from the Brain, and Spinal Marrow to these Tendinous Filaments, they carrying in them a sufficient Strength to bear up the Weight of the Limbs; which peice of Service, the Fleshy Fibres of themselves were never able to undertake, much less capable of performing, as Bolton very plainly observeth.

Having presented the Reader with this full and plain Account of the Muscles, as both to their Nervous and Carnous Fibres, we shall next take a breif and pleasant Survey of their uses throughout the severall parts of the Body.

The Face being drawn with Natures fine Pencil, fill'd up with variety of Muscles (by which it performs those various Actions and Motions, we

The Preface.

daily find it concern'd with) are all melted into each other with a delicate Softness, Subtleness, and due Proportion, to give it a Beauty, and Complexion.

The Globular body of the Eye, the most admirable Machine of Light, is kept in its Orbs, and enlarged in its Dimensions, by the concurrent Positions of its Muscles, by which it is plainly seen to perform those curious, as well as various Actions it hourly exerciseth.

The Ear that receives its Sounds by the Orbicular Motion of the Air, does brace in its Drum, and preserve an entire Admission thereof by the Benefit of its Muscles.

The Lips, though they are nothing else than a Composition of delicate soft flesh, wrought into a Muscular Skin, have divers Muscles allowed them, to make them proper Organs of Motion, and both these and the Nostrils are opened and shut by the benefit of their Muscles; whilst the Orbicular Muscle allowed the Lips, is planted as their Center, being a perfect Antagonist to the rest; by these we not only receive our Nourishment, but by them also we have made a way towards our Utterance, and our Speech to discover our Minds, and make way for our being Understood.

Our Grinders, which have always been esteemed the useful Instruments of Mastication, and planted in the Mandibles as in so many distinct Caverns, and artificially fastned to one another by Ligaments to the Gums, are naturally set on Work by the Benefit of Muscles.

The various Motions of the lower Jaw, is wholly performed by the different Contractions of its Muscles, which joyning it to the upper, doth make a per-

The Preface.

perfect Closure of the Mouth and Teeth, whilst other Muscles given to it, are seen to pull open the Mouth again, and separate the Teeth.

The Gullet, or Hollow Pipe, framed by Nature as a convenient Repository for taking in our Nutri-ment, and sending it to the Stomack; is variously managed by the help of Muscles.

The Cheeks are purely made out of Muscles, curiously shaddowed, and in some other places finely formed, to give them an acceptable Grace; these, while being brought inwards in Mastication, do thrust the Ali-ment towards the Teeth, for its better comminution.

The Tongue, tho' it be but little in bulk, is of ve-ry great use and service to Mankind, being framed as our Instrument of Speech, and our Master of Tastes, to which are given diversity of Muscles, by which it is turn'd into various Postures, and these do bring it into diversity of Motions: Nay, the very Act of Mastication, which helps forwards the Com-minution of our Aliment, and promotes for our En-crease and Growth, is performed by a joynt Consent of Muscles.

The Intestines, though Membranous, yet the Greater Ones are allowed Muscular, and the Rectum ending in the Anus, is allowed a Sphin-cter Muscle, framed out of Circular Fibres, there planted for pursing up its Perforation, it having also other Muscles given it for preventing its falling down, and when once down, after its reduction to keep it up in its proper Place.

The Breast, Back and Sides, are all of them clothed with Muscles, by whose Various Motions, they are seen to act and bring the Body into different Forms and Shapes.

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The Trunk of the Body, by bringing the Ribs upwards and outwards, which it performs by the Benefit of its Muscles, is plainly seen to dilate its self, and by pulling them downwards, does narrow its Cavity.

The Intercostal Muscles lodg'd between the Ribs, being contracted, do raise the Ribs upwards and outwards; and as the outward do dilate, so does the inward contract the Trunk.

The Back formed of many Links closely put together, by the Interposition of Ligaments, and firmly annexed by them, are by these, and the Benefit of the Muscles, secured in their Places and due Positions.

The Abdomen, or Lower Belly, has a peculiar Garniture, or Suit of Cloathing given it, made of a Fleshy Armour of Muscles, contrived with admirable Art, and divided into various shapes, curiously put together by wonderful Care, both for the better securing the Kell, and all the other Bowels under its Charge, from Cold, and outward Injuries, as also for keeping them in their proper Stations; by the benefit whereof also the Peristaltick Motion of the Bowels is promoted upon this their Muscular Compression, and not only so, but they do promote and help forwards the Excretion of the Urine, the Exonerating of the Bladder, and the discharge of the Fætus.

The Bladder of Urine, with its second Coat, covereth its inward Circumference, being made of divers sorts of Fibres, they contracting themselves, do lessen its Cavity, by which it squeezeth forth the Urine, and unloads the Bladder; and its Neck being framed of Orbicular Fibres, when they are contracted, these on the contrary do impede the Urines involuntary Egression.

The

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The Testicles have allowed them a Dartos framed by Nature as the second Coat, which being as a thin Muscular Membrane furnish'd with many fleshy Fibres, does by their assistance contract the Scrotum.

The Penis is not without its Muscles, some serving for depressing it in its Contraction, and others for dilating its Urinary Passage.

Women about the Pudenda have Muscles allow'd them also, two of which are assign'd the Clitoris, which by compressing its Thighs, do give a Check to the Motion of the Blood, whence follows a distention of its Body; another also is given it, which is fasten'd between the Labia Pudendi, which may more properly be said to contract the Entrance of the Vagina, than occasion an Erection.

The Shoulders, Arms, and Hands, by the benefit of Muscles, do perform those various Motions and Actions we hourly see them engaged in, by which they make Man the great Master of all Arts and Sciences, whilst the Thighs, Legs, and Feet are confirmed, our ready Managers of Progressive Motion. Thus have I in a great measure shewn, that without the Benefit of the Muscles, we cannot well be said either to live, move, or have a Being, much less, talk, write, work, or walk without them. Having done with my intended Design in the Preface, I must acquaint the Reader, that I am obliged to take Notice of a rude Reflection made on me, and my First Book of the Muscles by one Mr. Cowper, who has writ somewhat on this Subject, who in his Preface is pleas'd to stile it, A most Erroneous Collection of other Mens Mistakes. I am sure he had done much more like an Artist, in proving the same in his own Discourse, as I have in this my Treatise

The Preface.

shewn what an entire History his is like to prove to his great Merit and Satisfaction, by comparing his all along with mine throughout the whole Discourse.

In this I can assure the Reader, I have taken all imaginable Care to imitate Nature in my Figures, so far as can be exprest by Art, and am not ashamed to say, that this design of mine is new, and therefore no ways borrowed from any other Hand; for, tho' I do not deny, but that I have made use of the best of Authorities to grace and furnish my Discourse, who carry in them the greatest Truths, both in their Descriptions, Uses and Observations, to whom I have paid that Acknowledgment by prefixing their Names at the Entrance into the Book in a particular Elenchus for that purpose, yet none of them before me had ever the Names of the Muscles engraved on them, which is a piece of no small Service to the Reader, but a great Ease and Satisfaction to every Enquirer into Anatomy; To this also I have added the late Learned Dr. Lower's Concise and Accurate Discourse of the Heart and its Use, as also of the Circulation of the Blood, never before this time appearing abroad in the World.

If the Reader will please to pass by the literal Elapses that have hapned by the Press in my absence, and not turn them to my Disadvantage, as some of my late Antagonists have ungenerously done by some of my former Books; He will shew his Candour to the Author, who have herein studied how to oblige him in this my Performance.

From my House at the White
Posts at Charing-Cross, near
White-hall. April 10th. 1697. }

Vale.

To

To my very much Esteem'd Friend,

Mr. John Browne,

SWORN CHYRURGION to His MAJESTY:
ON HIS
Myographia Nova.

SIR,

ANATOMY, wherein you have so excellently well adorned your Province, is not only of great use in Chyrurgery and Medicine, but also in some parts of Phylosophy; and is moreover subservient to Religion.

Its shews its Phylosophical Usefulness, when it demonstrates by how admirable and divine Mechany the Animal Fabrick is raised; and when it explains the Power, and the wise Conduct, by which the whole Oeconomy is managed: Which indeed is so wonderful, that from thence the excellent Physitian and Naturalist, Galen, found himself obliged to rise up into the most sublime Praises and Admiration of the CREATOR. Hence his Books, which were written de Usu Partium, are clearly a Divine Hymn or Song, by which he celebrates the immense Wisdom, Providence and Goodness of the Almighty.

So that the Knife and Lectures of a skilful Anatomist, cannot but preach Religion even to the very Atheist, when he sees the stupendous Make of Living Creatures, when he considers the Subtlety, the Variety, and wise Contrivance of Parts in the most minute, as well as in the largest Animals, by which all their inward and outward Actions and Motions, their Sounds, their Voices and Words were formed and exerted. All which, nothing less than an Omnipotent Being could effect.

For the Prattle of the Roman Effigies, called Citeria, the Utterance of Words by the Earthen-Head of Albertus Magnus, or by the Brazen-Head of Roger Bacon, were, tho' subtle Artifice, but faint Resemblances: And the Articulate Speech, together with the raising and resolving of proposed Questions by the American Parrot, was plainly Diabolical, and therefore not from Animal Sense or Energy.

The Flying of the Wooden Pigeon of Architas, or of the Wooden Eagle of Regiomontanus, which took Wing (if I may so say) and mounted up into the air, and shewed the Emperour, who was then going to Norimberg, the way thither: The Walking of

the Statues of Dædalus, and the Steps of the Iron Image in Africa, (which advanced several Paces to make its Address to the King of Morocco, and with bended Knees presented a Petition to him in behalf of the Artificer) were all (as most other Automata are) ingenious Contrivance, but yet very imperfect Imitations of Living Nature, accomplished by Weights, and Screws, and Wheels, or by Quicksilver, and the Subtle Vapours of Inanimate Spirits.

But the most exquisite Art cannot frame such Instruments, and infuse those internal Powers into them which are necessary for Animal Actions: Nor is Nature (which is only Matter and Motion) able, without the Influence and Direction of a living Spirit, to excite their Spontaneous Motions: Neither could such a Spirit be originally made, but by the Hand of God, who in the beginning, made the Seed of all Bruits of an Ætherial and Fiery Matter, and the Soul of Man of a Supercælestial Essence.

Now Anatomy is able to shew us, that not only in the seeds of Vegetables, but in the seeds of Animals also, the individual Species is compendiously and actually couched; and by consequence, that all Generation is still the Work of the CREATOR, who made the first Seed.

So that your Anatomical Administrations, are more Theological than every one imagines, and do elegantly display the Wisdom and Art of the Divine Potter, who formed the beautiful Statue of Man out of Clay.

And not only those Muscles which enable the Mouth to speak, and the Hands to write, but all of them (which were so wonderfully made by God, and are so neatly delineated by you) do empower and instruct us to speak and sing Hallelujahs.

And they induce me to esteem and praise this your Musculary Tract, wherein, by imprinting the Name upon each Muscle (especially when you joyn the Uses of them to their Names) you will render the Study of this part of Anatomy so easy and delightful, that not only Students in Medicine and Surgery, but also ingenious Gentlemen (who are curious, and desire to understand so much of themselves) will be encouraged to enquire into it, and to study it. Upon which account more especially 'tis heartily recommended to publick View and Use by me, who am a great Lover of your Ingenuity, Art and Industry,

Edmund Dickinson, M. D.

Lately Physitian to the Persons and Families
of K. Charles II, and K. James II.

To the much Valued and Worthily Esteem'd,
Mr. JOHN BROWNE,
Sworn Chyrurgion to His MAJESTY.

S I R,

I Have, as my time would permit, perused your Book of Muscles, and observed your Method in the Description of them; which seems to agree with the best of Authors I have met with, and I do think it the most useful Book of the kinde I have seen; not only for a shorter way of informing Young Students in Physick and Surgery, but for refreshing the Memories of others, more vers'd in such Exercises: And as you have shewed great Labour, Ingenuity and Industry by your very Pertinent and Apposite Additions, (to what you have done before) so I hope it may prevent many injuries which might happen to Mankind: For I have observed those of your Profession, (or rather Pretenders to it) who were most deficient in Anatomical Knowledge, were most bold with their Knives and Lancets (which I have too often seen).

Therefore I do not think I do ill to mention it here, because it seems to me to be absolutely necessary, that whosoever shall attempt to make use of his incision Knife or Lancet upon any part of a living (Humane) Body, ought to know what lies under the Skin or Place within the reach of the point of either of them, or the distance he intends they shall act in; for in the common use of letting Blood, the want of knowledge in the Origination of some Muscles, and Insertion of others, their Tendons are often prick'd, not only to the loss of Limbs, but Life its self: (I do not mention wounding of Arteries, &c. which are equally dangerous.)

The Consideration of which, one would think should be a sufficient Caution to all, who have Occasion for Chyrurgical Operations, to chuse such persons as experimentally and distinctly know the Nature and Difference of the parts, &c. and how they do lye, that they may be sure to avoid doing a Mischief to the person they intended to do good to; at least this is my Opinion, who am a Lover of Anatomy, and of all those that are Improvers of it, and think my self obliged to thank you, for the great pains you have taken therein:
And,

I am S I R,

Your Grateful Friend, and Affectionate Servant,

Edmund King, M. D.

Physitian in Ordinary to the Late King CHARLES II.
Fellow of the College of Physitians of London, and
of the Royal Society.

Eximio Viro D. Johanni Browne, de suâ Myographiâ Novâ.

Quicquid agunt Homines; Linguæ, Dextræq; Labores,
Quæ Cerebrum, Vultus, quæ Brachia, Lumina præstant,
Crura, Pedes, Digni, Pectus, tua Pagina Stringit.
Quæ Regio in Membris vestri non plena Laboris?
Tu carnis pigræ clarissima munera pingis,
Et macerata luto meliori Frustula rubra
Officiis Vitæ monstras sublimibus apta,
Et quantum pollent humano in Corpore partes
Molliculæ, crassique agitati mente lacerti.
Tu medias inter Fibras, inq; Artubus ægris,
Occidui Motus nostri das visere causas,
Perpetuiq; tui, ut *Phæbo* patri comes ibis
Per tractus Musarum omnes, per dissita Regna,
Immensasque plagas Famæ, Venturaque sæcla.

Nath. Vincent. S. T. P. & Aula de Clare S.

Ingenuo Viro Mro. Johanni Browne, Regio Chyrurgio; de suâ Myographiâ Novâ.

Condidit Omnipotens Hominis cum Corporis Almam,
Eximiamq; tulit cæco de pulvere Molem,
Formandi hoc finivit Opus, plaudente *Triuno*;
Quæq; suâ Dextrâ perfecit quinq; diebus
Contraxit sexto Deus experientior uno.
Hic coeunt Mundi quæcunq; Elementa prioris
Constituere Orbem, Socioq; in fœdere jungunt,
Diversæ diversa tenent Moderamine Membra
Leges, Officioq; suo funguntur alacri;
Ut juste *Μῆρς* mereatur Nomine *Κορυῆς*:
Admirandum Opus, & Divino Numine Dignum!
At quâ Lege vigent, quo tandem cum ordine *Membra*,
Consiliisq; movent, *Cerebrum* quæ dictat agenda,
Quæq; movit *Pectus*, quæq; Officiosa propinant
Lumina, festinat quam *Pes*, peragitq; labores.
Indefessa *Manus*, junctis ut Viribus urgent
Grande Ministerium Pacem Vitamq; tuendi,
Hæc tua sola dedit, nobis *Ars* mira videndi.

E. Oliver. A. M.

Viro Amicissimo pariter ac Doctissimo Johanni Browne, de suâ Myographiâ Novâ.

Musculus humanos variè qui temperat artus,
Et movet assiduis *Dadala* Membra rotis;
Qui modo permittit, laxas modo curtat habenas,
Et Spatium Arbitrio conficit omne tuo;
Qui standi præbet causas, causasq; sedendi,
Et jacet in viridi mox resupinus humo;
Musculus ille tua tenebris exutus ab Arte,
Debet inextinctum nunc tibi, *Browne*, diem.
Perge ut cæpisti, docto nova munera sæclo
Tradere & assiduâ spargere dona Manu:
Sic tibi dent dignos venientia tempora grates,
Et cingat meritas Laurea longa Comas.

J. Turner. olim e Societate Christi apud Cantabrigienfes.

To the most Industrious, and most Esteem'd,
Mr. JOHN BROWNE,
Sworn Chyrurgeon to His Majesty.

S I R,

THE Charms in Dissection, and in the Anatomical Study, are so very great, that they justly command the Admiration of all sorts of Men; yet in all that Study, there's nothing so surprizing, so difficult, and, at the same time, so useful and delightful, as is the Knowledge of the Muscles, and their Uses. When they are understood, all other underling Difficulties soon disappear. 'Tis astonishing to see their Power and Force in Vaulting, Lifting of Prodigious Weights, Running, Jumping, and in other Violent Exercises; yea, to behold our Porters going every day under so great Burdens, and our Blood performing its stages under them: But if we go a little farther, and but consider what we see done in Maniacal Diseases, how handsful are overwhelm'd! Strong Ropes, and sometimes Iron Fetters broke in pieces! This must surely, and really does exceed our Admiration: We have no scruples to attribute such unusual Powers to Possession, and to call them the Work of the Devil. But let us allow that the Devil is at the Helm, and that he really determines those Powers that contract our Muscles; yet these Muscles are the immediate Agents, they are employ'd in overthrowing all these Opposers, and that procure the Madman his hurtful Liberty, by destroying his Bonds. On the other hand, if we behold poor Man stretch'd upon his Bed, and laid fast asleep, we may easily lift up that Hand that shew'd us so much Strength and Activity but just now, and it makes no Resistance; then leave it to its self, and see if it can sustain its self after you have lifted it up, but it immediately falls; move it to and fro upon the Bed, and straight it obeys; lay it in any Posture, you have nothing that may hinder you; change it from that, and there's no Reluctance. And what I now say concerning his Hand, you know may be said of any other Part of the Body; so that the whole Body, when asleep, seems to be something made of Wax, or some other soft Substance that is easily moulded into any Form. But whence comes this great and constant Variety of Motions? Is it not from these Instruments of Motion, we call the Muscles? But are not these very Muscles in the languid, weak and sleeping Man, as well as when he was awake, went to Court, and play'd at Tennis? Surely, howsoever wide the Disproportion is in both these states; and tho' these Muscles that make us Harrangue, that make us Write, Fence, Dance, Vault, &c. are now all asleep; yet we live, our Blood keeps its Circular Motion thro' all these Languid Parts, tho' no
*
other-

otherwise, but that the watching Muscles of the Heart and Thorax, that never sleep, are still at work. Yet, we see that this motion is continued, tho' all these powerful Muscles are unemployed, and that with so great Force and Impetuosity, that in every time of the Hearts Contraction, we may see by the help of good Microscopes the same very thing we might, if we took Blood or Water and squirted into a Conical glass Tube that is almost full, we see at every squirt of the Syringe, every Contraction of the Heart, the Blood forced forward with so great Strength, that dashing it self into a thousand Pieces upon the approached Column and the side of the Vessel, it flies about like particles of an angry billow broke upon a hard Rock: But here our Admiration is raised again; how the Heart that has so few and so small Nerves, whose Coronary Veins are so very wide in respect of the Arteries, should thus propel this Viscid Liquor, the Blood thorow so many Vessels that could make millions of yards, if they were stretched out at full length, Vessels so very small, and those clewed up and folded so close that the great Borrellus's Hyperbolical Calculation seems to come very far short. Yet, its Circulation thorow so many stages, and against so great Resistance is our life its self. But if all these astonishing, these surprising Effects are the works of these Muscles; surely the right numbering of them, their exact Bigness, their proper Actions, and their Insertions must be a very necessary piece of Knowledge for our understanding our own strength, and for Physitians, to know the just motion of that Liquor, that gives Health and Life it self to themselves, and those they are desir'd to relieve from some languishing Distemper; and all that by raising and lowering of that Spring that determines the Bloods motion.

'Tis all this your History of Muscles, Worthy Sir, leads us into; besides a thousand Things more of useful enough, tho' lesser, Consequence; and I wish that your ordinary Diligence had engag'd you too, into a Relation where every Nerve, Artery and Vein was supply'd to each particular Muscle: But this is no Imperfection in your Work, and as your exact History you have already given us of the Muscles, will bring us greater light into these most surprising Phænomena, so, I wish that Years and a firm Health may never fail you, till you have minutely described those Rivers that water the Countries you have so faithfully surveyed, which is the sincere Desire of,

S I R,

Your Most Humble Servant,

William Cockburn, M. D.

One of the Colledge of Physitians in London, Physitian
to the Blue Squadron of his M A J E S T Y's Fleet,
and Fellow of the Royal Society.

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This TABLE sheweth the NAMES of the
MUSCLES as they do arise in Dissection, and
as they are contained in the Lectures.

O bliquus Descendens	Masseter or, Mansorius
Obliquus Ascendens	Temporalis, or Crotaphites
Rectus	Mastoidens
Pyramidalis	Biventer, or Digastricus
Transversus	Coracohyoideus
Cremaſteres	Sternohyoideus
Dartos	Sternothyroideus
Musculi Clitoridis	Hyothyroideus
Directores	Styloceratohyoideus
Acceleratores Urinæ	Pterigopalatinus
Frontalis	Sphenopalatinus
Corrugator	Mylohyoideus
Occipitalis	Geniohyoideus
Orbicularis Clausor	Myloglossus
Elevator Palpabræ	Ceratoglossus
Clausor Oculi Superior	Genioglossus
Clausor Oculi Inferior	Hypoglossus, or Basiglossus
Recti Quatuor Oculi	Styloglossus
Obliquus Primus Oculi	Lingualis
Obliquus Secundus Oculi	Cricothyroideus Anticus
Elevator Auris	Oesophagus, or Sphincter Gulæ
DetraCTOR Auris, or Triceps	Stylopharyngeus
Adductor Auris	Cephalopharyngeus
Abductor Auris	Sphenopharyngeus
Externus Tym. auris, or laxator Externus	Cricarytenoides Posticus
Internus Tym. auris, or laxator Internus	Cricaritenoides Lateralis
Abductor Nasi Alas	Arytenoides
Elevator Nasi Alas	Thyroarytenoides
Clausor Nasi Externus	Pterygoideus Externus
Clausor Nasi Internus	Pterygoideus Internus
Nasi Clausor Communis	Longus
Zygomaticus Riolani	Scalenus, or Triangularis
Abductor Labii	Pectoralis
Depressor Labii Inferioris	Subclavius
Constrictor Labiorum	Serratus Major Anticus
Platysma Myodes, or Quadratus	Serratus Minor Anticus
Buccinator	Intercostales Externi

The Table

Intercostales Interni

Levatores Ani

Sphincter Ani

Sphincter Vesicae

Detrusor Urinae

Diaphragma

Here let the Body be turned upon the Face.

Cucullaris, or Trapezius

Latissimus Dorsi

Rhomboides

Levator Patientiae

Rotundus Major

Suprascapularis Superior

Suprascapularis Inferior

Nonus Humeri Placentini, or Rotundus

Subscapularis

If you intend to take off the whole Arm with the Scapula, the Dissection of these following Muscles will with more ease be performed.

Deltoides

Biceps

Octavius Humeri, or Teres Minor

Brachialis Internus

Gemellus Major

Gemellus Minor

Anconæus

Palmaris

Caro Musculosa Quadrata

Flexor Carpi Interior, or Ulnaris

Flexor Carpi Exterior, or Radialis

Flexor secundi Internodii, or Perforatus

Flexor tertii Internodii, or Perforans

Flexor tertii Internodii Pollicis

Pronator Radii Teres

Pronator Quadratus

Flexores primi Internodii Digitorum

Flexor primus, primi Internodii Pollicis

Flexor ejusdem secundus

Flexor secundi Internodii Pollicis

Primus

Secundus

Tertius

Quartus

Minimi Digiti Abductor

Pollicis Abductor

Pollicis Adductor

Interossei Manus

Extensor Carpi Exterior, or Bicornis

Extensor Carpi Interior, or Ulnaris

Extensor secundi & tertii Internodii Digitorum

Supinator Radii Longus

Primi Internodii Extensores

Extensor Pollicis Ossis Tertii

Abductor Indicis

Supinator Radii Brevis

Here you return to the Body its self as it lies.

Serratus Posticus Superior

Serratus Posticus Inferior

Splenius, or Triangularis

Trigeminus

Transversalis

Spinatus

Recti Majores

Recti Minores

Obliqui Superiores

Obliqui Inferiores

Longissimus Dorsi

Sacrolumbalis

Cervicalis Descendens

Sacer

Semispinatus

Quadratus Lumborum

Psoas Magnus

Psoas Parvus

If you please to take off the Thigh from the Trunk of the Body, by dividing the Os Ileum from the Os Sacrum, the Dissection of the subsequent Muscles will the better be performed.

Ili-

The Table

<i>Iliacus Internus</i>	<i>Gasterocnemius Externus</i>
<i>Glutæus Major</i>	<i>Plantaris</i>
<i>Glutæus Medius</i>	<i>Gasterocnemius Internus</i>
<i>Glutæus Minimus</i>	<i>Subpoplitæus</i>
<i>Pyriformis, or Iliacus Externus</i>	<i>Flexor tertii Internodii, or Perforans</i>
<i>Obturator Internus</i>	<i>Tibiæus Posticus</i>
<i>Quadrágiminius, or Quadratus Femoris</i>	<i>Flexor Pollicis</i>
<i>Obturator Externus</i>	<i>Flexor secundi Internodii Pollicis</i>
<i>Membranofus</i>	<i>Perforatus</i>
<i>Sartorius</i>	<i>Adductor Pollicis</i>
<i>Gracilis</i>	<i>Abductor Minimi Digiti</i>
<i>Rectus</i>	<i>Transversalis Placentini</i>
<i>Vastus Externus</i>	<i>Tibiæus Anticus</i>
<i>Vastus Internus</i>	<i>Peronæus Primus</i>
<i>Biceps</i>	<i>Peronæus Secundus</i>
<i>Seminervofus</i>	<i>Extensor Pollicis</i>
<i>Semimembranofus</i>	<i>Extensor tertii Internodii Digitorum</i>
<i>Triceps</i>	<i>Extensor secundi Internodii Digitorum</i>
<i>Lividus</i>	<i>Interossei Pedis</i>

The Names of the Authors

Concerned in this

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R. Bolton

W. Crown

A. Columbus

B. Cabrolus

S. Collins

Isb. Diemerbroeck

G. Falloppius

Galen

R. De Graaf

Hyppocrates

J. C. Placentinus

J. Riolan

D. Sennertus

Adr. Spigelius

C. Scarborough

N. Steno

J. Valverd

A. Vesalius

J. Veslingius

Vidus Vidii

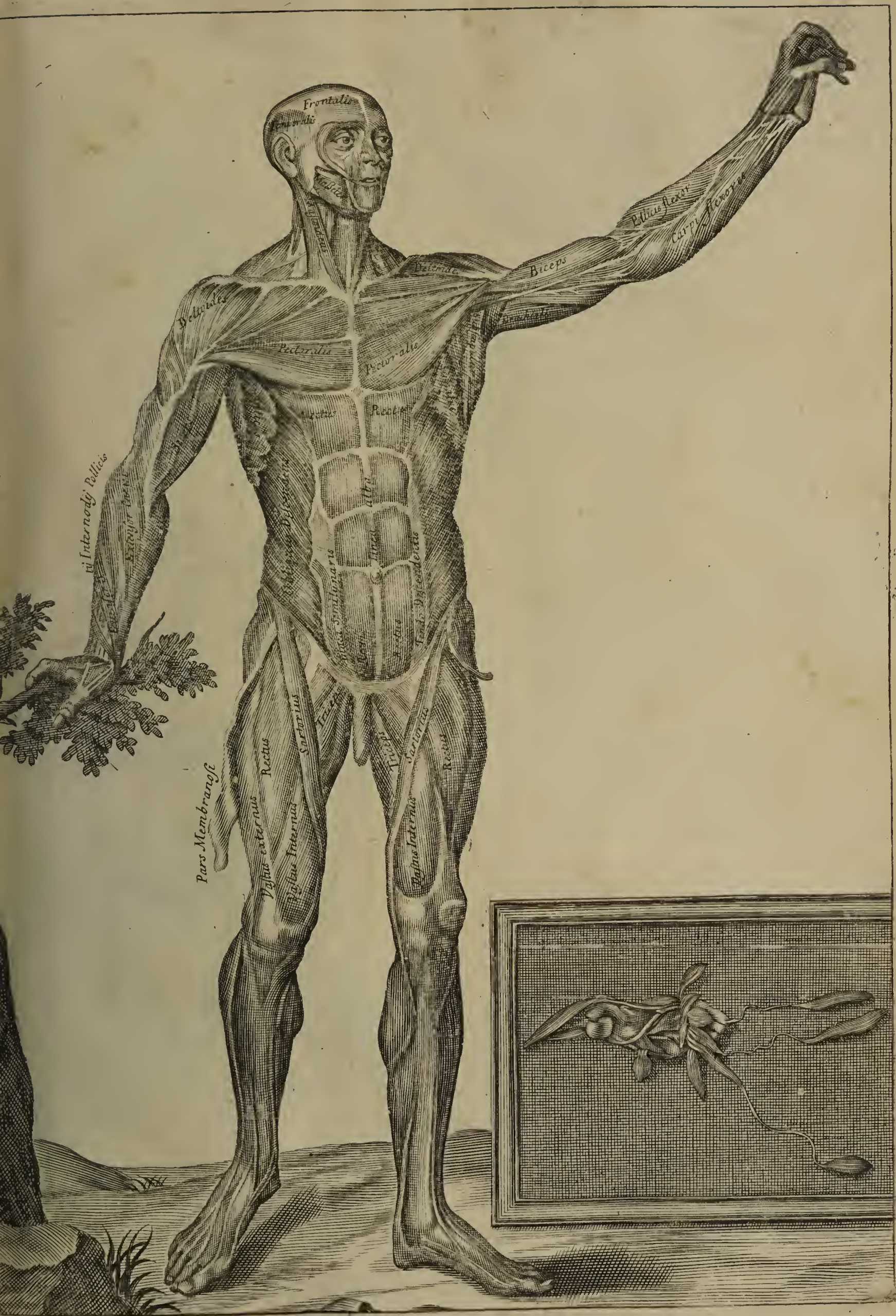
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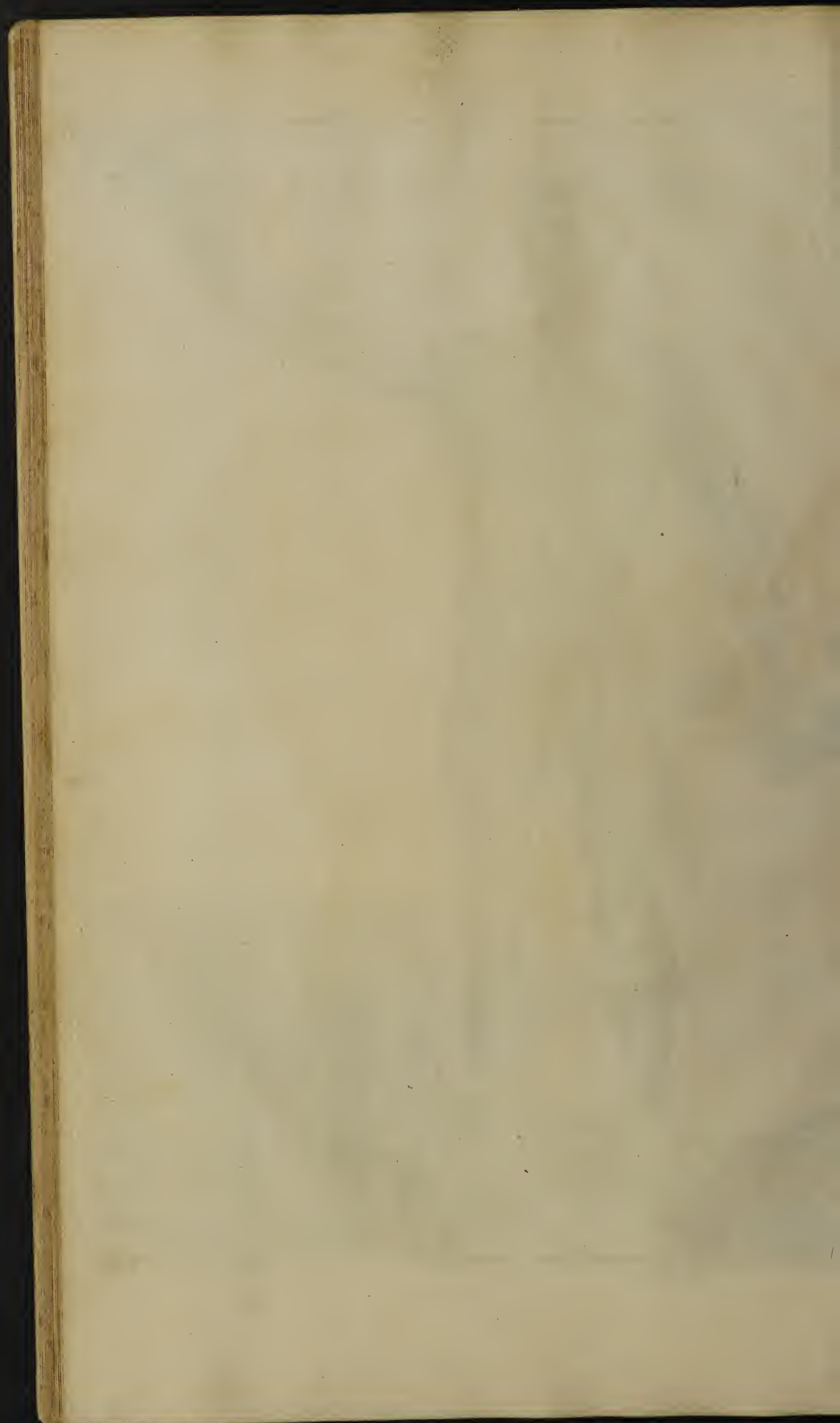
T. Willis

E R R A T A.

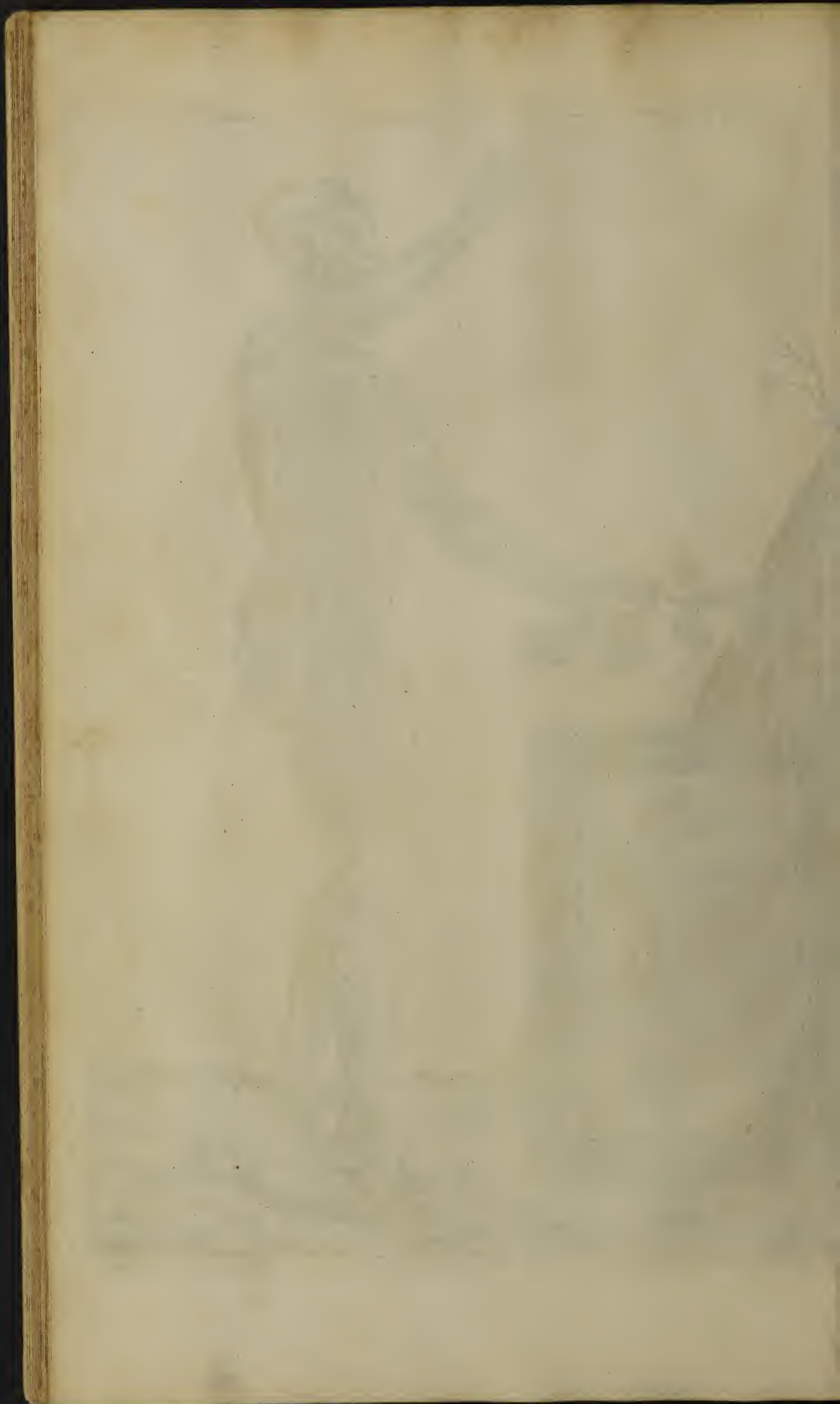
R Ead Fol. 4. Line 21 *these*, f. 6. l. 23. r. *these*, f. 7. l. 30. r. *from*, f. 12. l. 1. r. *Elevated*, f. 15. l. 7. r. *this*, f. 16. l. 10. r. *bringing*, f. 16. l. 4. r. *Mentale*, f. 16. l. 17. r. *Tonick*, f. 16. l. 7. r. *lower Lip upwards*, f. 17. l. 2. r. *through*, f. 16. l. 29. r. *Anteriora*, f. 19. l. 17. r. *strongly*, f. 22. l. 21. r. *decussating*, f. 24. l. 16. r. *sides*, f. 26. l. 18. r. *Tip*, f. 30. l. 11. r. *Tip*, f. 31. l. 25. r. *Arytanoida*, f. 32. l. 10. r. *Respiration*, f. 33. l. 27. r. *Constringe*, f. 34. l. 11. r. *bis*. In the Appendix f. 100. l. 6. r. *immediately*, f. 102. l. 20. r. *framed*.

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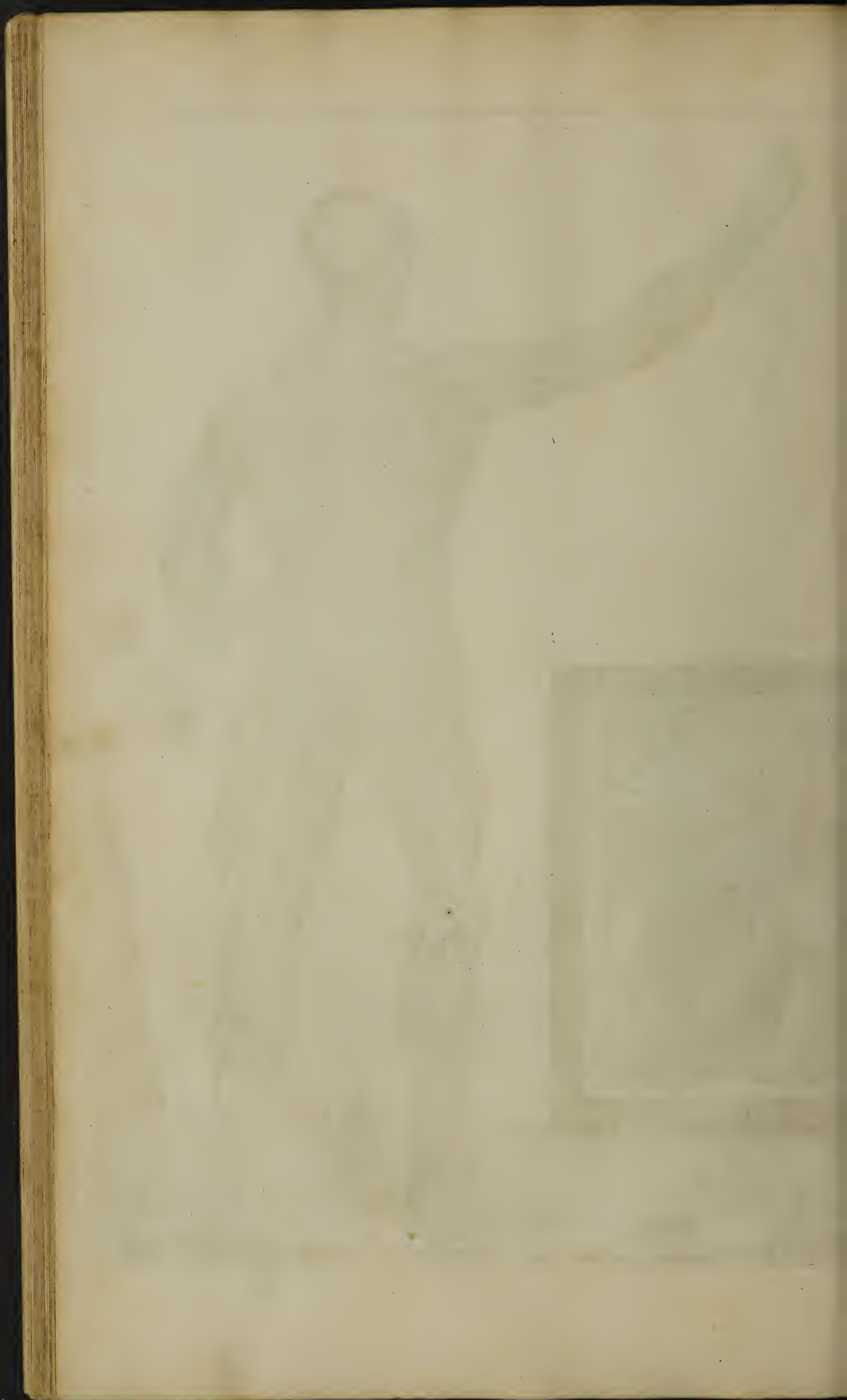














Prælectio prima

TAB. I.



A
T R E A T I S E
O F
Muscular Dissection.

L E C T U R E I.

In which are contain'd these following MUSCLES, viz.

Obliquus Descendens,	}	{	Cremasteres,
Obliquus Ascendens,			Dartos,
Rectus,			Musculi Clitoridis,
Pyramidalis,			Directores,
Transversus,			Acceleratores Penis.

Obliquus Descendens.

NATURE hath been very industrious in forming a strong Bandage for keeping in of the Intestines and *Viscera*, from falling from their proper Places; and these *Muscles* being finely lodged under one another, wrought up into variety of Shapes, and framed of diversity of Fibres, being thus artificially put together, do make up a Triangular Figure, as I shall elsewhere enlarge. We begin our Discourse with the *Epigastrick Muscles*, or those of the *Lower Belly*, both for the prevention of offensive Smells, as also for the more ready Dispatch of the other *Muscles*, as they arise in order of Dissection: We begin with this *Muscle* first, both in respect to its Largeness and its Situation, it taking its Name from its Course of Fibres, which are seen to march obliquely downwards, it being partly Fleishy, and partly Tendinous, arising from the 6th, 7th, 8th, and 9th. Ribs, indented, or indenting themselves into the Carnous Dentiform Processes of *Serratus major Anticus*; and as *Diemerbroeck* writes, sometimes from the 10th. and 11th. Ribs, as also

This compresseth the Belly laterally.

Membranous from the Transverse Processes of the Lumbal Vertebres, and passing to the *Linea Alba*, and *Os Pubis*, by a broad Tendon, gets into the middle of the *Abdomen*, and is not to be separated from the subjacent Tendon of the *Obliquus Ascendens* without difficulty. This *Muscle* for the most part being Fleishy in its Origination, and inserted with a Membranous Expansion into the *Linea Alba*, is perforated by the *Cremasteres*, and in them are included the Spermatick Arteries and Veins near the *Os Pubis*.

Obs. This Tendon being either rent, or stretch'd with that lodg'd under it, and the Intestines, or *Omentum* passing through them into the *Inguen*, or *Scrotum*, does either occasion an Intestinal or Omental *Hernia*.

To Dissect this *Muscle* aright, you must divide the *Latissimus Dorsi* from him very low, that you may the better come at his Lumbal Origination; then by passing your Probe between the said Tendons, you are to divide the upper from the lower, the whole length of the *Abdomen*.

Columbus and *Laurentius* do affirm, That the chief use designed by this *Muscle*, was to contract the Trunk of the Body, and to promote Respiration; and that contrary to all other *Muscles*, these Abdominal *Muscles* appear crooked when they do not operate, and that they turn inwards when they do operate.

This is shewn in Tab. I. in its Place, and in Tab. II. it is laid bare with its Membranous Part.

Obliquus Ascendens.

*This helps
the former in
its Compression.*

THIS is implanted under the former, with Fibres obliquely ascending from the *Appendix* of the *Os Ileum*, having a Three-fold Origination: First, Fleishy under the 11th. and 12th. Rib, whose advantageous Situation does much conduce to the closing of the Trunk, by its Contraction in Expiration, whence ariseth a Relaxation of the *Diaphragma*, it being reduced to an Arch; and the Guts and Stomack being attoll'd by the compression of the Abdominal *Muscles*, are reduc'd into their proper Places, as *Dr. Collins* well observes: Its Second Origination is Tendinous, and doth arise from the Spines of the

Os



1870-1871
The first of the season
was a very dry one
and the crops were
very poor. The
second of the season
was a very wet one
and the crops were
very good. The
third of the season
was a very dry one
and the crops were
very poor. The
fourth of the season
was a very wet one
and the crops were
very good. The
fifth of the season
was a very dry one
and the crops were
very poor. The
sixth of the season
was a very wet one
and the crops were
very good. The
seventh of the season
was a very dry one
and the crops were
very poor. The
eighth of the season
was a very wet one
and the crops were
very good. The
ninth of the season
was a very dry one
and the crops were
very poor. The
tenth of the season
was a very wet one
and the crops were
very good.

1871-1872
The first of the season
was a very dry one
and the crops were
very poor. The
second of the season
was a very wet one
and the crops were
very good. The
third of the season
was a very dry one
and the crops were
very poor. The
fourth of the season
was a very wet one
and the crops were
very good. The
fifth of the season
was a very dry one
and the crops were
very poor. The
sixth of the season
was a very wet one
and the crops were
very good. The
seventh of the season
was a very dry one
and the crops were
very poor. The
eighth of the season
was a very wet one
and the crops were
very good. The
ninth of the season
was a very dry one
and the crops were
very poor. The
tenth of the season
was a very wet one
and the crops were
very good.

Os Sacrum, and the Transverse Processes of the Loins; the Third being Flethy, coming from the *Appendix* of the *Os Ileum*, then inserting himself with a Membranous Expansion into the *Linea Alba*, receives a Perforation by the *Cremaster Muscles*, and Spermatick Vessels, somewhat above the former, as is frequently shewn by Dissection.

Obs. I humbly conceive, That these *Oblique Ascendent Muscles* lodging just under the former, do run counter with them in their Fibres, and do keep them in *Oblique Ascendent Angles*.

Again, when the several *Muscles* of the *Abdomen* do variously contract themselves inwards, they do press down the Excrement, and send it forwards, and at the same time do reduce the Stomack and Guts to their proper Places, and are Antagonists to the *Diaphragma*; which, while moving, is brought into a Plain, when it enlargeth the Capacity of the Trunk, giving room for the Lungs to fill themselves with Air, pressing down both the Stomack and the Guts in their Expansion, by which the *Chyle* is gently sent and dispatch'd into its Duct; and when the *Diaphragma* leaves off, these Abdominal *Muscles* do begin, by loosening the *Diaphragma*, and bringing it into an Arch; upon which, the Belly grows lank, by the Contraction of the Abdominal *Muscles*, forcing the Stomack and Guts inwards and upwards.

This is shewn in its Place, Tab. II. with its Semilunary Line; and at Tab. IV. you have the same laid bare.

Rectus.

THIS Pair is cloathed with eight *Fibres* being well and strongly made, and well lined with Fleth; it ariseth from the *Os Pubis*, and runs along the length of the Lower Belly, from the Ensiformal Cartilage, and is inserted into the Sides of the *Sternum*, where the last true Ribs have their Cartilages: Its Insertions are various, it having sometimes Three, sometimes Four, and at other times Three and a Half, sometimes all appear above, sometimes they are seen below: The Paragraphs of this *Muscle* are also very observable; for where you find Four Paragraphs, you will scarce meet any *Pyramidal Muscles*.

This brings the Belly forwards.

Some Authors do affirm, that these do bring the *Penis* from the *Ribs*, and that when we rise out of our Beds, they seem to swell and fill outwards; others do affirm that they help towards the bringing the *Trunk* inwards, and that by their double Contractions they do perform the Two Motions of bringing the *Breast* to the *Os Pubis*, and the *Os Pubis* to the *Breast*.

Again, as I humbly conceive, that these taking their Origination from the *Os Pubis* and the *Sternum*, and inserting themselves into the *Linea Alba*, and running all along the middle of the *Abdomen* in its length, in their Contractions do bring their Insertions inwards, and by this Motion they do help forward the Peristaltick Motion, in excluding or discharging the grosser Part of the Excrement.

Again, as another Observation hereof, these *Right Muscles* as they do march along the *Belly* in direct Lines, and are made of straight Fibres; so the *Oblique Descendent* in Bevil Lines, and the *Oblique Ascendent* going obliquely upwards, and the *Transverse* crossing the *Belly* o'rethwart; all being thus put together are thus framed, as a strong and warm covering to keep the Bowels from outward Injuries, as Cold and the like.

This you have at *Tab. III.* and at *Tab. V.* you have it layd bare.

Transversus.

*This brings
the Belly down-
wards.*

THIS *Transverse Muscles* being lodged under the former, are penetrated above them with the *Cremasters*, and have a three-fold Origination: As First, Fleshy from the inner Extremities of the *Bastard Ribs*; and Secondly, Membranous from the *Transverse Processes* of the *Loins*; and lastly, from the *Spine* of the *Os Ileon*, inserting themselves with a Membranous Insertion into the *Linea Alba*, which is a Contexture made up and interwoven out of all the *Tendons* of the *Abdominal Muscles*, which being run together into one entire Body, do very much assist each others Motion in compressing the *Belly*.

Bartholine saith this was framed for compressing of the *Colon*; most *Anatomists* allow that this pair of *Muscles* do bring the *Belly* inwards, being of much use in their Contractions





tractions, and they being of a moderate Thickness, do help the former in keeping the Bowels warm which are lodged under them.

As I said before, this *Muscle* being obliquely perforated above the *Ascending Muscle*, thro' which the *Cremasters* and *Spermatick Vessels* do pass, and the Perforations of the *Oblique Descending*, and *Oblique Ascending Muscles* of the *Abdomen* being thus framed one above another, not in straight, but in Bevil Lines thus running and crossing the Belly, do hinder any Prelapsion of the Intestines into the *Scrotum*; for by their *Fibres* thus running countre to those of the right *Muscles*, and thus crossing each other, they are seen to bind the Guts long-ways downwards, as the *Fibres* of these *Transverse Muscles* running o'rethwart do in their right *Angles* secure the said Guts broad-ways, upon this their thus crossing the Belly.

This is shewn both in its Place, and out of its Place, with the Peritonæum, Tab. V.

Pyramidalis, or Succenturiatus.

FALLOPIUS, the first Inventor of these *Muscles*, gives them both their Names; one from its make, being fashioned like a Pyramid with a broad Basis, and a narrow Point; the other being as an Auxiliary to the *Oblique Ascendent*, assisting them in their motion: This ariseth broad and fleshy, and by degrees doth narrow it self till it becomes a long *Tendon* implanting it self into the Navel; or sometimes above, or beneath it, into the *Linea Alba*.

This presseth the Belly downwards.

These are seen frequently wanting in those who have the Origination of their *Ascending Muscles*, not from the *Ileon*, but from the strong Ligament which inwardly passeth from the Spine of the *Os Pubis*, and hath four Paragraphs in the right *Muscles*; its commonly observable, that the left of these is usually the least.

Fallopins says, they are made for compressing the Urinary Bladder, and for the sending forth of its Urine.

Columbus writes, that they do assist in raising the *Penis*: But *Flud* confutes this Opinion from their Situation; for they do not reach it, and therefore cannot do any Office to

that part whereto they have no Coherence; besides, these are found in Women.

Nature has shewn her self an industrious Mistress, in thus variously planting all these *Muscles* o're the *Abdomen*, for keeping the inward parts in their Enclosures; and by these their Substantial fleshy Expansions defending them from cold and outward Injuries, arching some of them, and running others into right Lines, and some of them into *Pyramidal* Figures.

This you have at Tab. III. and Tab IV. in its proper place, and the same laid bare, Tab. V.

Cremasteres, or Suspensorii.

*This keeps up
the Testicles.*

EACH *Testicle* is furnished with a proper *Muscle*, which commonly carries the Name of *Cremaster*, as *Regnerus de Graaf* observes; this being tyed to the outward Membrane of the *Vaginal* Coat on either side, which in man hath their Origination from that Ligament which is in the *Os Pubis*: In Dogs and other Creatures, they are seen to arise from the *Tendons* of the *Transverse* *Muscles*, and their fleshy *Fibres*, running through the *Vaginal* Coat, but mostly in its back part: Hence is it, that the outward part of this Coat appears rough, and very fibrous, while its inward Coat is smooth, and lin'd with a waterish Moisture, being strongly annex'd to the lower part of the *Testicles*.

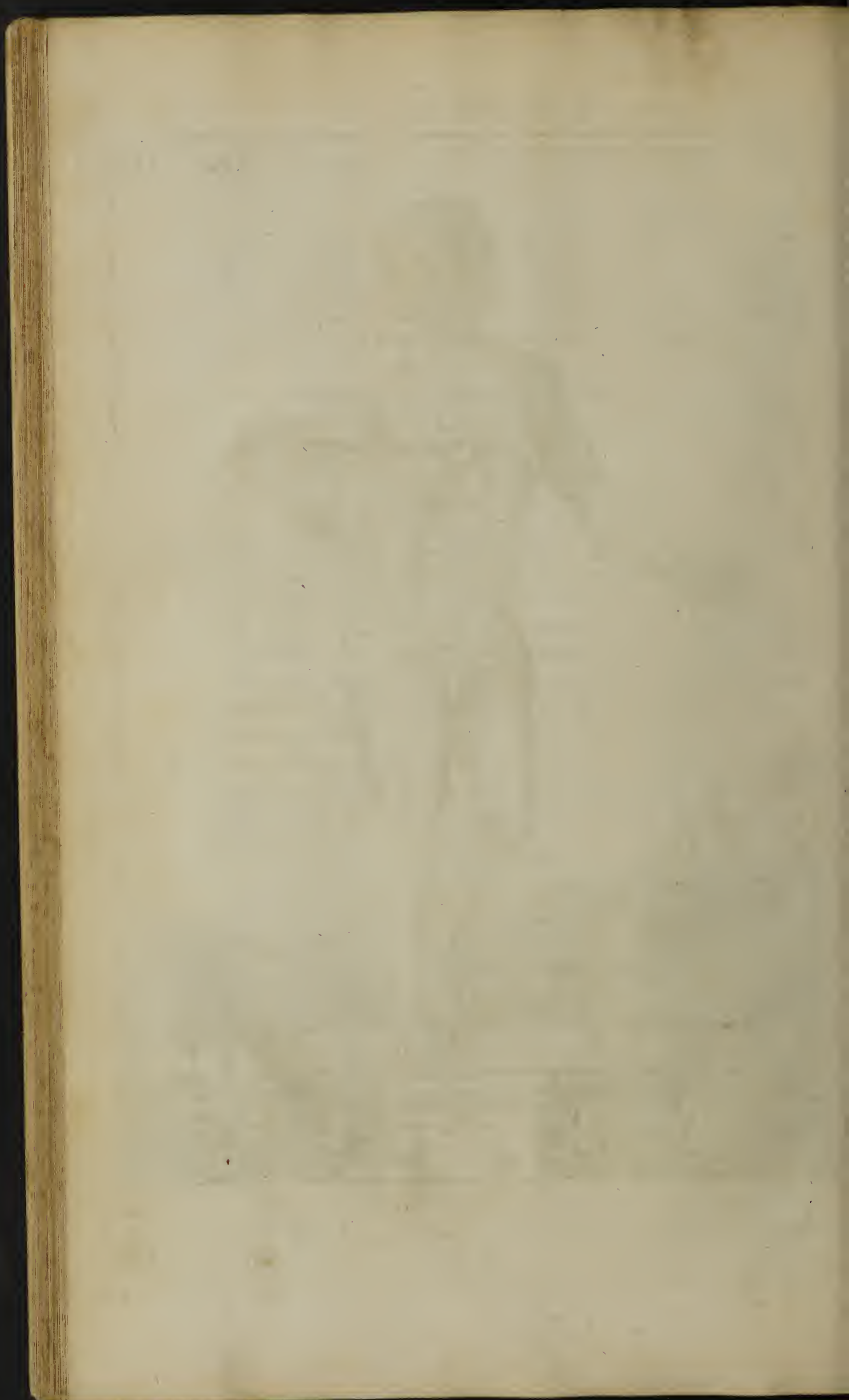
Their Names do describe their proper Uses, they both keeping the *Testicles* warm, and preventing their falling from their proper places, the raising them upwards in Coition also; nor indeed does the drawing up of the *Testicles* towards the *Abdomen* so much proceed from the Corrugation of the *Scrotum*, made by the fleshy *Fibres* of the *Dartos*, as by the Contraction of these *Cremaster* *Muscles*; which becoming Tense, do raise up the *Testicles* towards the Process of the *Peritonæum*.

This you have at Tab. VI. Fig. III.

Dartos

TAB. IV.





Dartos.

THE *Scrotum* being nothing else but one Skin covered with another; the inner thereof is made up of a fleshy *Pannicle*, which is thinner than the other, it taking its Origination from the *Membrana Carnosa*, being a *Muscular Membrane* furnish'd and replenish'd with many carnous *Fibres*; by the help of which, its neighbouring Coat contracts and purseth up its self; and by the same also, contracting themselves, they do narrow and bring in the dilated Dimensions of the first Coat of the *Scrotum*: There have been seen some men who have had these so strong, that they could contract their *Scrotums* at their pleasure; as we have seen many, who, when they please, contract their Foreheads by the Strength of their *Muscular Fibres*. *This contracts the Scrotum.*

It's also observed of these parts amongst old Women, and Midwives, and the like, that such Children who have their Cods much contracted or rugose, are strong and healthful; and that those Infants who have them lank and relaxt, are generally very weak and sickly. This is one of the *Muscles* left out by our late Animadverter Mr. Cowper, who in his Title Page tells us, that he has described several *Muscles* not hitherto taken notice of by others; who, with the same Ingenuity, might as plainly have writ, that there are many *Muscles* taken notice of by others, which are now left out by him; amongst which this is one, and acknowledged to be so before he was born, or dreamed of for a *Muscle-monger*.

This is not to be shewn by Figure.

Musculi Clitoridis.

THE *Clitoris*, being a small round Body framed of a nervous and spongy part arising out of the upper part of the *Os Ischium*, hath many Names allowed it; as, *Amoris Dulcedo*, *Libidinis Sedes*, *Oestrum Veneris*, no part of the *Pudendum* being more delighted in Congress than this, or raising Women to receive their kind Embraces in Man, than the Titillation hereof. *This extends the Clitoris*

Diembroeck saith, that the *Clitoris* in Women doth answer the *Penis* in Man in Situation and Substance, and only differs

fers therefrom in length; which can carry no great matter of truth in it; this not being perforated in its *Glans*, and no Way or Passage found in it to direct it into the *Urethra*, as the other hath into the *Penis*.

The *Muscles* assigned this, do arise out of the Bones of the *Coxendix*, which passing over the *Crura* of the *Clitoris*, are inserted into them, and do by their Contraction compress the thighs of the *Clitoris*; and by this their Compression, do give a check to the motion of the Blood, and hereby making a Distention of the Body of the *Clitoris*.

Another Pair is also given to the *Clitoris* by *De Graaf*, arising between the *Labia Pudendi* within the *Clitoris*, and its *Retiform Plexure*, and is so fastned to it, that it rather contracts the Entrance of the *Vagina*, than causeth any Erection of the *Clitoris*.

This you have at Tab. VI. Fig. IV.

Director Penis, or Collateralis.

This pulls
the Penis down-
wards.

THIS hath a Nervous Origination, and they are a short thick Pair of *Muscles* arising from the Appendix of the *Coxendix*, below the Origine of the Nervous Bodies; into whose thick Membrane they do terminate, and then their fleshy *Fibres* do disappear.

When they operate, they bring down the *Penis* toward the *Ossa Pubis*.

This you have at Tab. VI. Fig. I, II.

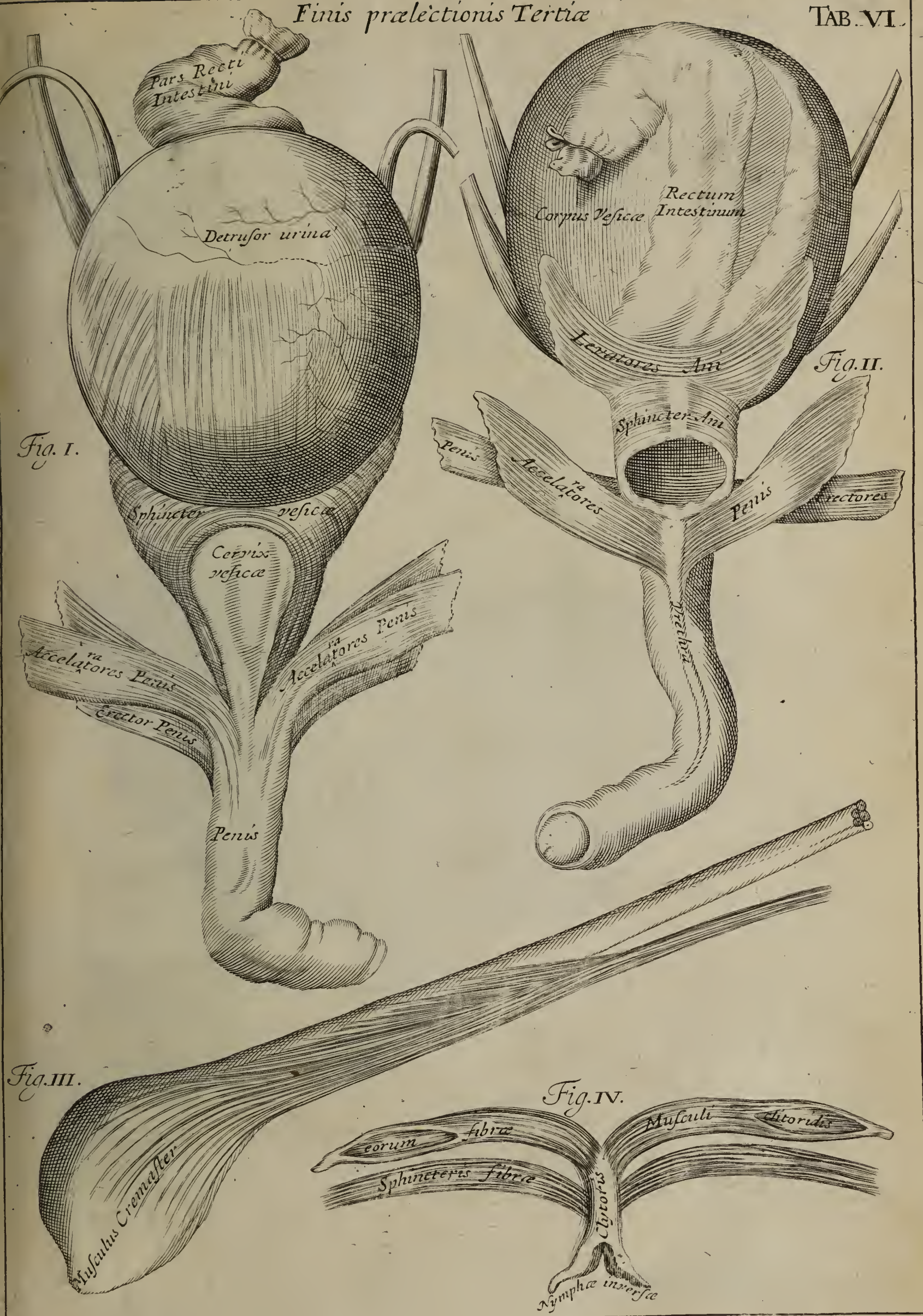
Acceleratores Urinæ.

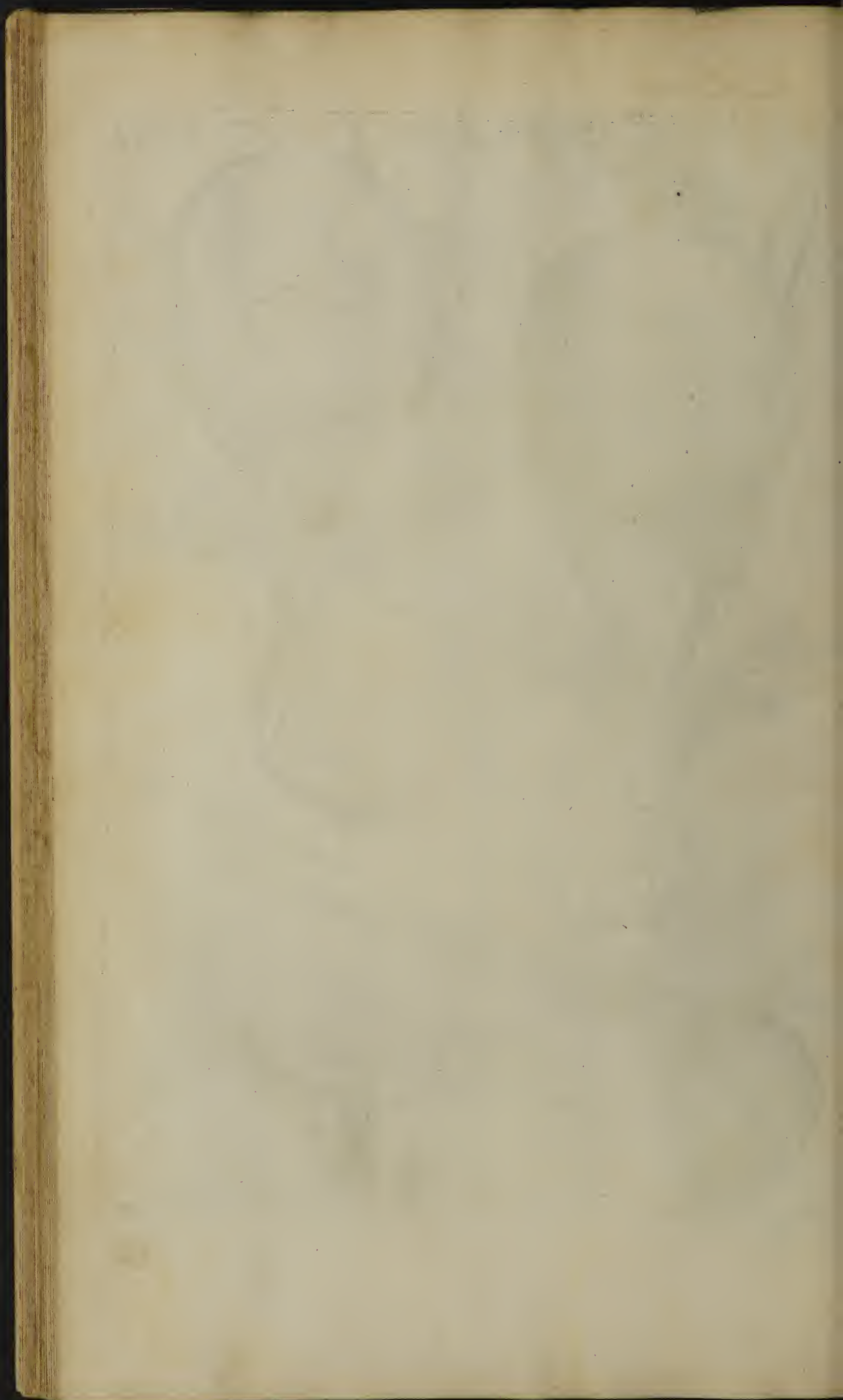
THESE do take their Names from the Use which is made of them in dilating the *Urethra*, and hastning the Urine's Excretion, as also that of the Seed; they being long and thin *Muscles*, do arise from the *Sphincter Ani*, as *De Graaf* affirms; altho' others say, that they do arise from the upper part of the *Urethra*, as it passeth under the *Os Pubis*, and are joyn'd together by their insides, marching out, and ending in a thick Membrane.

The









The former use assigned these *Muscles* was to promote an Erection in the *Penis*, and dilate the *Urethra*; but this is contradicted by *De Graaf*, who supposeth that the *Directores* or *Erectores*, do rather depress in their Contraction, than erect the *Muscles*; and that the *Acceleratores* do rather perform the Duty of narrowing, than dilating the Urinary Passage.

This you have at Tab. VI. and Tab. XIV. Fig. I, II.



1870
The following is a list of the
names of the persons who
were present at the meeting
of the Board of Directors
of the City of New York
on the 10th day of January
1870.

1870



H

1870

Lecture II.

To which these following *MUSCLES* do most properly belong, *viz.*

<i>Frontalis,</i>	<i>Abductor Auriculæ,</i>
<i>Corrugator,</i>	<i>Temporalis,</i>
<i>Occipitalis,</i>	<i>Digastricus,</i>
<i>Orbicularis Clausor,</i>	<i>Masseter,</i>
<i>Elevator Palpabræ,</i>	<i>Pterygoideus externus,</i>
<i>Elevator,</i>	<i>Internus,</i>
<i>Dilatator,</i>	<i>Styloceratohyoideus,</i>
<i>Constrictor Nasi alarum,</i>	<i>Coracohyoideus,</i>
<i>Zygomaticus,</i>	<i>Mylohyoideus,</i>
<i>Elevator,</i>	<i>Geniohyoideus,</i>
<i>Depressor Labii Superioris,</i>	<i>Sternohyoideus,</i>
<i>Elevator,</i>	<i>Styloglossus,</i>
<i>Depressor Labii Inferioris,</i>	<i>Ceratoglossus,</i>
<i>Sphincter Labiorum,</i>	<i>Genioglossus,</i>
<i>Buccinator,</i>	<i>Myloglossus,</i>
<i>Quadratus,</i>	<i>Hypsioglossus,</i>
<i>Elevator Depressor,</i>	<i>Lingualis,</i>
<i>Adductor,</i>	<i>Mastoideus.</i>

Frontalis.

HAVING cleared the *Abdominal Muscles*, which in necessity required the first use of the Knife, we next arrive at those which in Dignity do deserve our Inspection; beginning with this, which ariseth from the elated Part of the Front, near the *Temporal Muscle*, thin, broad and fleshy; as also where the carnous Membrane closely adheres to the *Cranium*; which made *Riolan* give it the Name of *Membrana Carnosa Musculosa*; and in its march downwards, is inserted into that Skin which covers the Eyes, as also into the Eye-brows: In raising of this *Muscle* from the *Cranium*, you will meet with Nerves sent from it.

*This draws
the Forehead
upwards.*

Obs. This being elated; it not only raiseth the Skin of the Forehead with it, but opens the Eyes also; and being framed of right *Fibres*, it is a sufficient Caution for *Young Chyrurgeons*, that they make no cross Incisions in this Part.

Bartholine writes, that in a *Nasute* Person he observed the Appendix hereof, extended even to the *Cartilages* of the Nose.

This you have at Tab. VII. Fig. I.

Corrugator.

*This draws
the hairy Scalp
backward.*

THIS *Muscle* and its Partner, as *Volcherus Coiter* writes; doth arise near the greater *Canthus*, or *Orbite* of the Eye, and seems to end about the middle of the Eye-brows; and tho' they are not plainly apparent in all men, yet in some they fairly represent themselves; they being generally allowed to draw the Skin backwards, and at the same time smooth the Front.

This you have at Tab. VII. Fig. I.

Occipitalis.

*This helps
the former.*

THERE are found two other *Muscles* in the *Occiput*, but they are not commonly seen; they being short, broad and thin, arising fleshy from the Transverse Line of the *Occiput*, from whence they do take their Names, and becoming afterwards tendinous do intermix themselves with the *Pericrane*; these also arising with right *Fibres* marching upwards, are sometimes seen to border upon the *Muscles* of the Ears: And hence is it, that those who have these *Muscles* very large, can at pleasure bring the Skin of their Heads backwards; as *Diemerbroeck* well observes: These *Muscles* are not to be shown in any of my Figures, much less mentioned in any of my former Books of these *Muscles*: When they operate, they are allowed to pull the hairy Scalp backwards.

Orbi-

Orbicularis Clausor.

THIS Muscle being framed of Orbicular Fibres, doth circularly encompass the Eye-lids: Vesalius and Bartholme allow this a single Muscle, planted between the Membrana Carnosa and the Pericrane, near the Roots of the Nose, and takes its Origination from the inner Angle, and is carried under the lower Lid with Orbicular Fibres to the outward Angle, and afterwards enwrappeth the upper Lid, and maketh its Insertion into the greater Angle where it began.

This shutteth
the Eye.

This Muscle at first view seems to be an Orbicular Muscle, but upon a strict Enquiry, it will discover it self to be two Semicircular Muscles; of which, the upper and larger being planted in the upper Lid, taketh its Origination from the inner Angle of the Eye, near the Nose; and passing thence the length of the upper Eye-lid, is inserted into the outward Angle of the Eye; and being moved downwards, smootheneth the upper Lid, and covers a great part of the Eye: The other ariseth with a sharp Origine from the side of the Nose somewhat under the other, and passing cross the lower Lid, is implanted with a broad Insertion into the upper Eye-lid, to which it adjoyns the lower Lid: So that the Muscle of the upper Eye-lid pulleth it down, and that of the lower Lid lifteth it up, which plainly shews this to be two diverse Muscles allowed either of them distinct Originations and Insertions.

This you have at Tab. VII. Fig. I.

Elevator Palpebræ, or Aperiens Palpebram Rectus.

THIS is said to arise sharp and fleshy from the upper Orbitæ of the Eye, near the Elevator where the Optick Nerve hath its Transmission: It having a thin and fleshy Origination, and is expanded with a broad and thin Tendon, into the Margin of the Palpebræ, and raising the same up, doth open the Eye with it.

This opens
the upper Eye-
lids.

This is not to be shewn, but with the other Muscles of the Eye, after it is taken out of the Cranium.

This and the former you have well described at Tab. VII. Fig. I.

E

Elevat

Elevator Nasi Alarum.

*This dilates
the Nostrils,
and doth raise
the Alæ.*

THESE Muscles arise from the Top of the Bone of the Nose, near the *Lachrymal Cavity*, with a sharp and fleshy Origination, descending towards its sides, in a Triangular Form, much resembling the Greek Δ , and marching downwards the length of the Bone, is inserted broad and fleshy into the *Nasi alas*.

This is not found in all persons, and it is shewn at Tab. VII. Fig. I.

Dilatator Nasi Alarum.

*This dilates
the Nostrils.*

THESE Muscles are very small and thin, and very scarce discernable; but in *Nasute* Persons, they appearing fleshy at the Root of the *Alæ*, and so climbing Transversly upwards, are inserted into the upper Parts of the *Alæ*, and by raising them, do at the same time dilate the Nostrils, as *Veslingius* observes.

These Muscles are so small, and planted so inwardly; that they are not to be shewn by any of my Figures.

Constrictor Nasi Alarum.

*This closeth
the Nares.*

THIS Muscle is much like the former for bigness, lodging it self inwards near the Membrane; which covers the Bone of the Nose: It ariseth fleshy at the Root of the *Nares*, and is Transversly carried, and inserted to the Roots of the *Nasi Alæ*, and upper Parts of the upper Lip; and being very small, is rarely found out, save only in *Nasute* Persons, whose general Frame of *Fibres*, are usually seen thicker, larger, and more apparent than in others.

This is also shewn at Tab. VII. Fig. I. in its place.

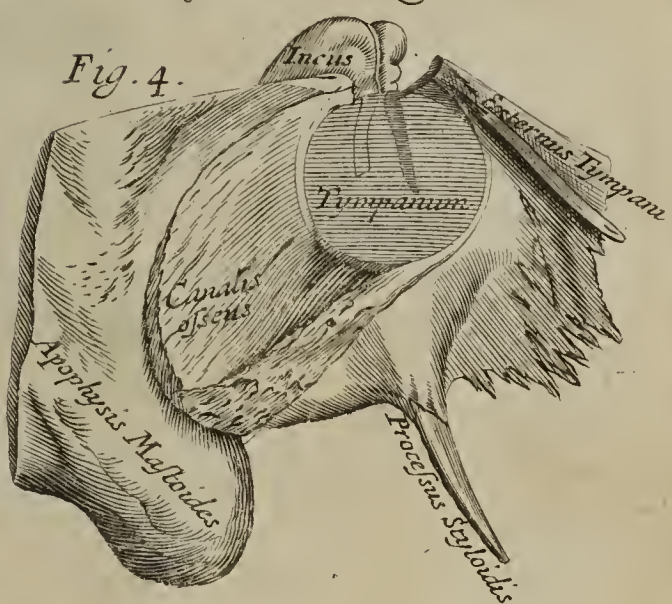
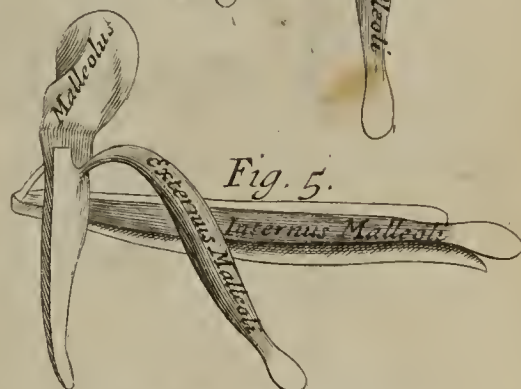
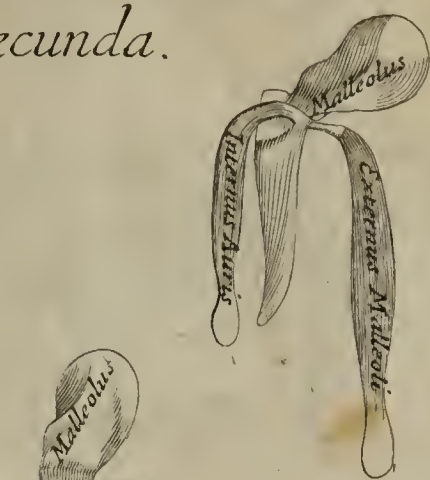


Fig. 8.



Fig. 2.

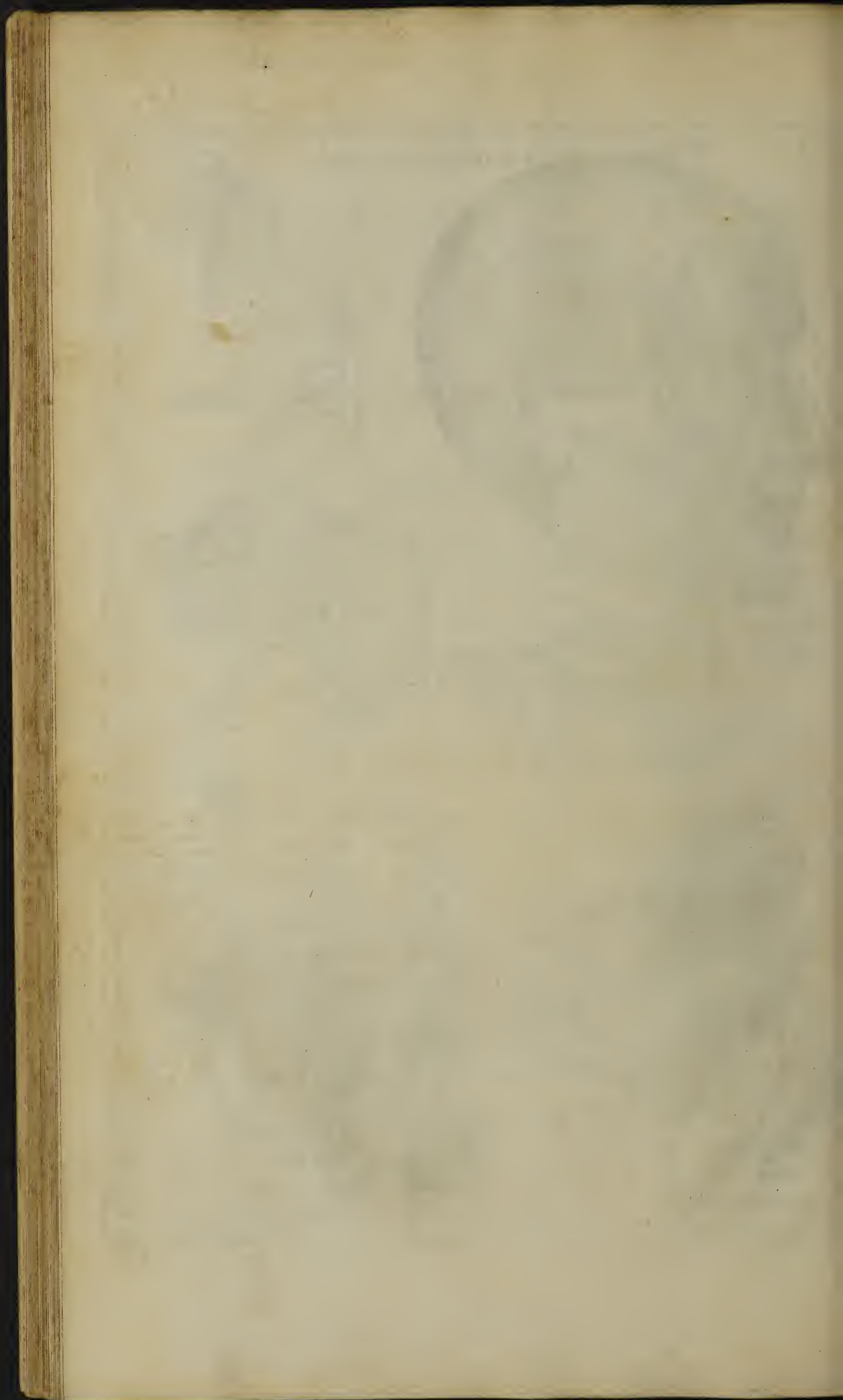


Fig. 7.



Fig. 3.





Zygomaticus, or Oris Distortor.

THIS Muscle ariseth round and fleshy from the Jugale Process, or the *Os Zygoma*; from whence, according to *Riolan*, it takes its Name, and marching obliquely downwards and forwards through the Cheeks, is inserted into the side of the upper Lip, near *Primus Nasi*, bringing the Lips upwards in its Operation. *This brings the Lip upwards.*

This you have at Tab. VII. in its place.

Elevator Labii Superioris

THE Muscle ariseth fleshy from the *Os Zygoma*, immediately above the former treated of, and descending obliquely under the Skin of the upper Lip, is implanted into the Lips where they are joyned together, bring them both upward and outward. *This brings the Lip upwards and outwards.*

This is shewn at Tab. VII. Fig. I. in its proper place.

Depressor Labii Inferioris.

THIS ariseth fleshy from the lowermost and outermost Part of the lower Jaw, whence marching obliquely, is broadly inserted into the middle of the Lip, in its Operation bringing it downwards and outwards. *This brings the lower Lip outwards and downwards.*

This is shewn at Tab. VII. Fig. I. under the lower Lip.

Depressor Labii Superioris.

THIS Muscle ariseth fleshy from the forepart, and outermost part of the upper Jaw above the Gums; and in its ascent, is inserted into the roots of the *Nasi Alæ*, and upper parts of the upper Lip, forcing the upper Lip and *Alæ* downwards; and by bringing them closer together in their Operations, they do advance our smelling of things grateful *This brings the upper Lip downwards.*

ful or ingrateful by this their contrary motion; this *Muscle* by some Anatomists, is taken for a pair of *Muscles*.

This is described at Tab. VII. Fig. I.

Elevator Labii Inferioris.

This brings
the lower Lip
upwards and
outwards.

THIS pair of *Muscles* do lodge within the lower Lip, being by some Anatomists call'd *Par Mentalæ*; they arising fleshy from the lower part near the Gums of the lower Jaw, and falling directly down in their insertions to the lower part of the outward part of the Skin, do in their operations draw the upper Lip downwards.

This you have at Tab. VII. Fig. in its proper place.

Orbicularis, or Sphincter Labiorum.

This purses
up the Lip.

THIS *Orbicular Muscle* is planted in the middle of the five pair of proper *Muscles* belonging to the Lips; and being common to both Lips, and consisting of a soft spongy flesh, is encircled with many *Orbicular Fibres* running about it; by which it wraps in the margin of the Mouth, and closeth the Lips in form of a *Sphincter*.

This *Orbicular Muscle* is an universal Antagonist to all the rest of the *Muscles*, keeping them in right order, and allowing them an equal ballance, doth give them a Tunick motion.

This you have in its proper place at Tab. VII. Fig. I.

Buccinator, or Constrictor.

This brings
the Cheeks and
the Mouth to
one side.

THIS *Muscle* from its common use made of it, is generally called the Trumpetting Muscle, it forcing the breath outwards: It is a *Muscle* assigned both to the Lips and other parts, and doth borrow its Origination from the Gums belonging to the upper Mandible, and do terminate in the lower Mandible; and being thin and membranous, as well as broad and fleshy, intermixt with a various set of *Fibres* firmly annexed to

to the inner Coat of the Mouth, they are scarce thence divisible as *Diemerbroeck* writes: Though this *Muscle* doth pass the *Ductus Salivalis Superior*, (which is easily found out in a Sheeps head) and in all our readings in our Hall, they are usually put together by naming it *Buccinator cum ductu Salivali*.

The use of this *Muscle*, is, that by its bringing the Cheeks inwards in Mastication; it forceth the solid Nutriment upon the Teeth for its better Comminution; and when a Proportion of Air is enclosed in the Mouth (whereupon the Cheeks are blown up, and afterwards contracted by the stronger and gentler Motion of the *Muscles*) that the confined Breath may be expelled with greater or less force into any kind of Instrument of Musick whatsoever, as *Dr. Collins* very worthily observes.

This is shewn at Tab. VII. Fig. I.

Quadratus, or Platysma Muodes.

THIS *Muscle* lying under the Skin, is called *Quadratus* from its Figure; it fairly represents a Square, and *Galen* calls it *Platysma Muodes* from its Muscular Expansion; and is properly termed one of the common *Muscles*: It is a Membranous Enclosure closely adhering to the Skin, and arising from the Spines of the *Vertebres* of the Neck, *Scapula*, *Clavicle*, and *Sternum*, running upwards with oblique *Fibres*, is implanted at the Chin, Lips, and roots of the Nose, which Parts it brings obliquely downwards; and being so closely joyned to the Skin, it seems to afford it an Assistance in opening the mouth; sometimes this *Muscle* hath been seen to reach even to the root of the Ear: In the raising this *Muscle*, be careful of leaving its Elongation, that makes *Adductor Auris ad Interiora*, which you will rarely miss: These *Muscles* are perfect Antagonists to the *Temporal Muscles*, which do elevate the lower Mandible, and closeth the Lips: This also assisting the *Digastricus*, do in joint contractions depress the lower Mandible, and open the Mouth, by parting the nether from the upper Lip, and the lower from the upper Mandible.

*This draws
the Cheeks
downwards.*

This you have at Tab. VIII. Fig. I. as it is laid bare.

F

Elevator

Elevator Auriculæ.

*This lifts up
the Ear.*

THIS Fine *Auricular* Structure is curiously carved out with diverse Processes, and insculpt with variety of Cavities, not only made for Ornament and Security, but for other excellent ends also: It hath also allowed it Concave Flexures for the ready breaking off any violent Motions, or Rushings in of Air, and to form a more ready Reception of Sounds, and forming of a Distinctness of Hearing, of which they have too sad an Experience, whose *Auricles* are decided or cut off by wounds, or lost by Diseases: This *Muscle* of the Ear shews its use from its Name; it arising from the external Termination of the *Frontal Muscle*, being framed of diverse fleshy *Fibres*, covering the *Temporal Muscle*, and being thin and membranous is carried over it, and growing narrower, is inserted into the upper Part of the Ear, bringing it upwards and forwards.

This is shewn at Tab. VII. Fig. II. and at Tab. XI. Fig. IV.

Detractor Auris.

*This brings
the Ear back-
wards and
downwards.*

THIS *Muscle* ariseth fleshy, broad, and sometimes fibrous, from the back part of the Head, near the *Mammillary Process*, and growing narrower in its progress, is inserted into the Cartilage which environs the Ear: Be careful of raising the *Cutis*, lest you take up the *Muscle* with it, and so lose him. This *Muscle* by some is allowed a part of *Quadratus Buccas Detrahens*; and by *Du Verny*, it is called *Triceps Auris*, from its threefold Origination allowed it.

This you have at Tab. VII. Fig. III. and at Tab. XI. Fig. IV.

Adductor Auriculæ.

*This brings
the Ear for-
wards.*

THIS is a common *Muscle*, being a part of that which *Spigelius* calls *Quadratus Buccas Detrahens*, and is also allowed a part of *Platysma Myodes*, as *Galen* calls it, both which are but one and the same *Muscle* from his Insertion; you will find a fleshy

fleshy and fibrous Elongation implanted into the Root of the Ear.

This you have at Tab. VII. Fig. I.

Abductor Auris.

THIS Muscle is planted at the Occiput, and ariseth above the Mammillary Processes, from a Knot of Muscles belonging to the Occiput, with a narrow Origination; and being carried Transversly downwards, is inserted with a double, and sometimes a treble Tendon into the Back part of the Ear: In Oxen, Horses, and the like four-footed Creatures, these Muscles are much more large than in men, and oftentimes seen more numerous, and have a more evident use made of them. Neither this nor the former is so much as mentioned in the Index by Mr. Cowper, the late reforming Muscle-man.

This brings the Ear backwards.

This you have at Tab. VII. Fig. I.

Temporalis, or Crotaphites.

THE strong and various Motion of the lower Jaw, is truly performed by the different Contractions of its Muscles, amongst which, this now discoursing of, gains the Preference from the rest, whose Course of Fibres being various, are as strangely put together to encrease their strength.

This brings the lower Jaw upwards.

This Pair invested with the Pericrane, do borrow their Originations from the bones of the Front, Temples, and Synciput; from whence they do arise in a thin fleshy beginning in a Semicircular Figure, which in their descent grows more fleshy, and afterwards thinner again, towards the Os Jugale, raised into a Circular Form, both to secure, and give place to the lower part of the Temporal Muscle, which creeping under it, inserts it self, with a short and strong Tendon, into the sharp Process of the lower Jaw, and in its Contraction drawing it upwards, doth close the Teeth of the upper with those of the lower Jaw, which is seen sometimes acted with that Vigour and Strength, that the Mouth cannot be involuntarily opened, unless by the Interposition of some screwed Instrument, as is usually seen in those Persons violently

troubled with the Epilepsy, where we many times are forced to use a *Speculum Oris* to force open the Jaws to make way for the letting in of some proper liquors into the Mouth.

This *Muscle* is accounted the strongest of all the *Muscles* belonging to the lower Jaw, and it is very dangerous to make Transverse Incisions here, especially in its lower part, by reason of its Variety as well as Multiplicity of *Fibres*, which being cross-ways wounded, are frequently attended with dangerous and fatal Convulsions: *Hippocrates* also writing, that the luxation of the lower Mandible, is very fatal also, unless speedily reduced. Which makes me much wonder, that our new *Muscle-man* Mr. Cowper, should say, That he never could observe these dreadful Symptoms arising in wounds of this *Muscle*, considering his Education, his Age, his multiplicity of Practice, and his general Employ he has had both at the Sea, and in the Hospitals: All which might have given him a better Sight into these dangerous consequences.

This is shewn at Tab. VII. Fig. I. and at Tab. VIII. Fig. I. you have the same laid bare.

Digastricus, or Biventer, or Graphoides.

*This brings
the Mandible
downwards &
opens the
Mouth.*

THIS is such a *Muscle*, that there are few such to be found in humane body; it gets its name from its double-belly, it takes its origination from the fore-part of the *Mastoideal* process, near the *Mammiformis*, first growing fleshy, then running into a tendinous body about its middle, and then turns into flesh again; so that it appears like a double *Muscle* put together by the mediation of a small round Tendinous Substance, and then growing fleshy, does inwardly terminate into the fore and middle part of the *Chin*, being Antagonists to the *Temporal Muscles*, which in their contractions do close the *Teeth* and *Mouth*, by bringing the lower Jaw upwards; and this on the contrary giving them a contrary motion, does open the *Mouth* and *Teeth* by pulling them downwards.

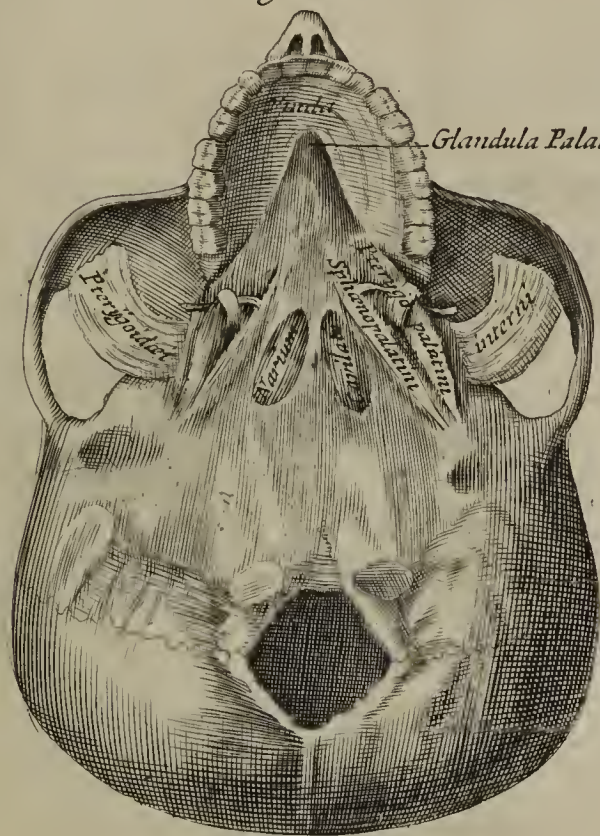
This you have at Tab. VIII. Fig. I. and at Tab. IX. Fig. I. and II.

Mas-

Tab. VIII.

Musculi Uvulae vocati à D.D.
 Crowne primum in lucem erutj
 et publicè ostensi.

Fig: 2.



Glandula Palati cum Uvula appensa et
 sursum reflexa

Fig: 1.

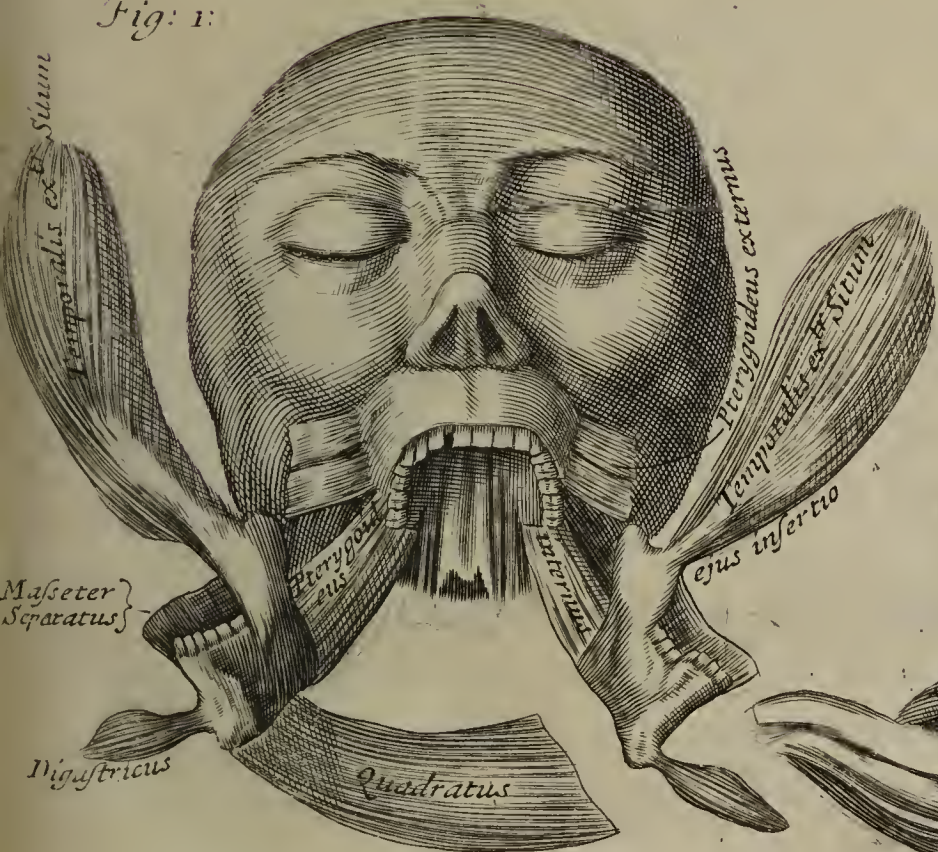
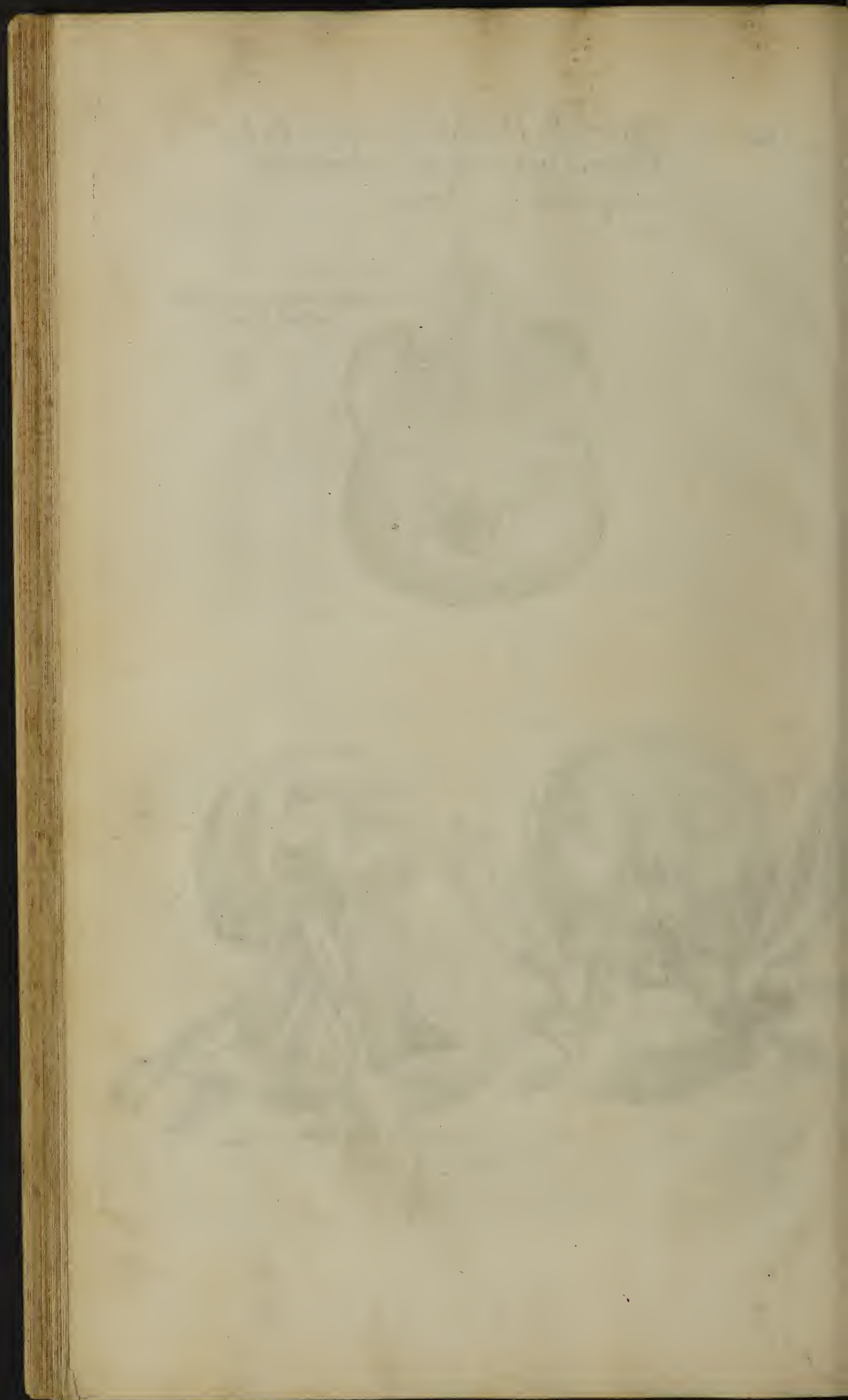


Fig: 3.





Masseter, or Lateralis.

THIS Muscle ariseth with a double Origination, strong, short, and thick; it being partly fleshy, and partly nervous, being carryed from the lower and inner region of the *Os Jugale*, and from the upper Mandible, and is largely and strongly tyed to the lower Jaw, and from its variety of fibres allowed it, it not only pulls it forwards, backwards, and laterally, but also doth work it about. *This brings the lower Jaw sideways.*

If you throw this Muscle either from its Origination or Insertion, *Temporalis* will appear in its view.

Its proper use is shewn in *Mastication*, it moving the lower Jaw either ways: It is called *Mansorius* from its use, and from its Situation it has the name of *Lateralis*: This assists the *Temporal Muscle* in sending forward the *Saliva*, which it performs by the upper *Salival Ductus* passing over it.

This you have at Tab. VII. Fig. I. and Tab. VIII. Fig. I.

Pterygoideus Externus, or Alare Externum.

THIS takes its name from its Situation, it ariseth from the *Os Sphenoides*, as also from the outward part of the *Processus Aliformis*, strong nervous and fleshy, and in its descent marching large, is by a strong and broad Tendon inserted into the inner part of the lower Jaw laterally, just under the Tendon of the *Temporal Muscle*, and does bring the same forwards, and as it were beyond the upper. *This brings the lower Jaw forwards.*

This you have at Tab. VIII. Fig. I. and II.

Pterygoideus Internus.

THIS has its Name also from its Origination and Situation, and ariseth thick and short from the inner Cavity of the *Processus Aliformis*, partly nervous, partly fleshy; and is inserted by a strong and broad Tendon into the inside of the lower Jaw, quite contrary to that of *Mansorius*, *This brings it backwards.*

and does promote the action of the *Temporal Muscle*, in bringing the lower *Jaw* inwards and backwards.

These *Muscles* do never appear well, until those of the *Tongue*, *Larynx*, and *Gula*, be compleated in Dissection.

The whole Performance of *Mastication* is managed by the joynt Concurrence of these *Muscles*, and the successive Motion of others, as Dr. Collins well observes: In which, as he saith, the *Masseters*, and the *Pterygoida*l *Muscles*, are most concerned with the *Buccinators*, and the *Tongue*: The moving of the *Digastricks* more properly relating to others, which by depressing the lower *Jaw*, do open the mouth for taking in of the Nutriment, and the *Temporal Muscles* by lifting up the nether *Mandible*, do close the *Teeth* with the Meat. The *Digastrick Muscles*, and the *Quadrati* depressing the lower *Jaw*, do open the *Teeth*, and the *Temporal Muscles* closing them as frequently, do by their contrary successive motion, stamp and lessen the meat while it is between the *Teeth*. The *Pterygoida*l *Muscles* and *Masseters* do break it into small pieces. The *Internal Pterygoides* drawing the lower *Jaw* outwards, and the *Externi* pulling it inwards, and the *Masseters* by reason of its *Fibres* variously discussing each others in diverse *Angles*, do assist the former in their Contractions, by which they bring the lower *Jaw* both inwards and outwards, for the better lessening of the Nutriment in *Mastication*, the *Buccinators* and the *Tongue* lending them their useful Concurrence, in keeping the meat in its due place.

This you have at Tab. VIII. Fig I, II.

Styloceratohyoideus.

This brings
the Os Hyoi-
des upwards &
backwards.

THIS ariseth fleshy and sharp from the root of the *Processus Styloides*, being small and round, and then growing larger, is implanted into the Horn of *Os Hyoides* under the Chin, and is infallibly found near *Digastricus*, where it is divided, to make way for the Entrance of the Tendon of *Digastricus*, belonging to the lower *Jaw*, through which he obliquely runs; its Insertion being at the lower part of the Horn, or rather towards the *Basis* of the *Os Hyoides*, bringing the *Os Hyoides* obliquely upwards. Now, altho' this is allowed as proper a *Muscle* as any other belonging to the

Os

Os Hyoides, so granted by *Bartholine*, *Riolan*, *Laurentius*, *Spigelius*, *Vesalius*, *Diemerbroeck*, and I believe by his Friend *Bidlow* too, yet our correct Reformer of *Muscles*, (I mean Mr. *Comper*) has thought fit to make no mention thereof in his Book, on Purpose I suppose, to shew himself an exact Reformer of this useful Part of Anatomy, which I suppose we must not take to be any mistake in him, because he mightily pretends to rectifie other mens Descriptions, and supplies their Defects, and retrencheth their Errors.

This you have at Tab. IX. Fig. I, II. and at Tab. X. Fig. I.

Coracohyoideus.

THIS Muscle is very thin and long, and ariseth (as *Diemerbroeck* writes, with most other Anatomists) from the upper side of the *Scapula*, near the *Coracoidal Process*, (tho' our new Reformer saith it hath another Origination and not that, as those vulgar Anatomists pretend, only to let us see he is *nulli secundus*;) at the root of which, it marching obliquely under the seventh Muscle of the Head, does there become a round and small Tendon; and then appearing again fleshy, is implanted into the Horns of the *Os Hyoides*, bringing it obliquely downwards: If you leave this Muscle in its Origination at the *Levator*, you will find his beginning perfect: This Muscle hath allowed it a double Venter, as has its former Companion, that the *Jugulars* may not be compressed by it.

This brings the Os Hyoides obliquely downwards.

This you have at Tab. IX. Fig. I. layd bare, and at Fig. II. you have the same, and at Tab. X. Fig. I.

Mylohyoideus.

THIS Muscle takes up that part which is between the lower Jaw, and the *Os Hyoides*, and arising laterally fleshy from the said lower Jaw under the *Dentes Molares*, marches with a double Set of fleshy Fibres into the Basis of the *Os Hyoides* externally. This is to be thrown upwards in Dissection: *Riolan* gives this at the fullest, but is not decyphered in my Book of *Muscles*.

This brings the Os Hyoides directly upwards.

Geniobyodeus.

*This brings
it upwards &
forwards.*

THIS, by some Anatomists is called *Rectus Attollens*, it being a short, thick, and fleshy Muscle, arising from the inner parts of the lower Jaw, or the Chin, and marching downwards, is inserted in a proper Cavity at the Basis of the *Os Hyoides* internally, bringing it upwards and forwards, and doth assist the *Genioglossi* in thrusting forth of the Tongue.

This you have at Tab. IX. Fig. I, II, III. and at Tab. X. Fig. I.

Sternobyodeus.

*This brings
the Os Hyoi-
des downwards
and backwards.*

THIS Muscle ariseth broad and fleshy from the upper and inner part of the *Sternum* (as most Anatomists write) (altho' denied by Mr. Cowper,) under the Skin of the Neck, and running all along in the same breadth and thickness, on the *Aspera Arteria*, and the *Cartilago Thyroides* of the *Larynx*, doth insert it self into the Basis of the *Os Hyoides*, bringing it directly downwards, and somewhat backwards.

This you have at Tab. IX. Fig. I, II. and at Tab. X. Fig. I.

Styloglossus.

*This brings
the Tongue up-
wards and in-
wards.*

THIS Muscle ariseth sharp, small, and fleshy, from the *Styloidal Process*, and growing broader and fleshy, is inserted into the middle of the Tongue, and does draw the Tongue upwards and inwards; it's best found by discovering the *Processus Styloides* with your Finger, and then your Eye will direct you to it at the side of the Tongue: in Man it is slender, but in Beasts it's double, fleshy and thick.

If either of them do move, they do bring the Tongue directly to the right or left side; but both moving, they bring it to the *Fauces*.

This you have at Tab. IX. Fig. II. and at Tab. X. Fig. II.

Ceratoglossus.

THIS Muscle ariseth fleshy from the Bones of the *Os Hyoides*, and is obliquely planted at the sides of the Tongue, near its root; if they both act, they bring the Tongue inwards and downwards; if one only works, it brings it to one of its Sides.

*This brings
the Tongue
downwards and
inwards.*

This you have at Tab. IX. Fig. II, III. and at Tab. X. Fig. II.

Genioglossus.

THIS Muscle ariseth fleshy with a narrow Origination about the middle of the lower Jaw, or Chin, and then enlarging himself, is inserted into the root of the Tongue; when they both act, they pull the Tongue forwards, and at the same time do thrust it out of the Mouth: *Veslingius* takes this for one of the Muscles of the *Os Hyoides*, and writes that it is fixed to its *Basis*.

*This brings
the Tongue for-
wards.*

This you have at Tab. IX. Fig. II. and at Tab. X. Fig. II.

Myoglossus.

THIS Muscle ariseth with a broad Origination, from the innermost part of the lower Jaw under the *Molares*, and is inserted into the Ligament of the Tongue, which ties the *Basis* to the *Fauces*; at the Origination of *Mylohyoides* you may clearly find it, and it is best shewn when the Mandible is divided: When one of these move, the Tongue is turned upwards; if both move, they lift up its Tip towards the *Palatè* or Roof of the Mouth: This is another of the Muscles not taken notice of by Mr. *Cowper*, who writes purely for doing every man justice, and himself to Boot: this is another of his retrenched Errors.

*This brings
the Tongue up-
wards.*

This you have at Tab. IX. Fig. III. Tab. X. Fig. II.

Hypsioglossus, or Basioglossus.

*This draws
it inwards and
downwards.*

THIS Muscle ariseth fleshy from the Basis of the Os Hyoides, and does end in the middle of the Tongue, and by bringing it inwards, does at the same time draw it backwards. Mr. Comper also writes Page 80. of his Book, that whether there be such a Muscle as this, his late Enquirers have not acquainted him: If he pleaseth to consult, *Veslingius*, *Bartholine*, *Spigelius*, he may meet with this there; and because I will not give him the trouble of looking into my first so erroneous a Collection of others mistakes, if he will but cast his Eye on *Diemerbroeck*, or his own Country-man, *Dr. Collins*, he will find them both there, as also *Myloglossus* another of his Muscles not thought worthy of being mentioned by him; and if I mistake not, his Friend *Bidlow* hath told him as much: So that he need not make himself so great a Stranger to this Muscle, if he be that man of Dissection he pretends to be.

*This you have at Tab. IX. Fig. II. and at Tab X. Fig. II.
by the Name of Basioglossus.*

Lingualis.

*This moves
the Tongue in
contraction and
in dilatation.*

THIS Muscle ariseth fleshy and large from the Basis of the Os Hyoides, and runneth forward to the Top of the Tongue; and at this day it is disputable whether it be a Muscle or not: But *Spigelius* gives it this use, that its Transverse Muscles do thicken it, and as it were constringe it, and that by its Oblique Fibres it is dilated, and that its right Fibres were formed for bringing it towards the Palate.

There is no Description of this Muscle in Figure.

Mastoideus.

*This Con-
tracts the Neck.*

THE System of Spinal Vertebres may properly be termed a Chain made up of two extream Parts, each part being formed of many Links put together, by the interposition of

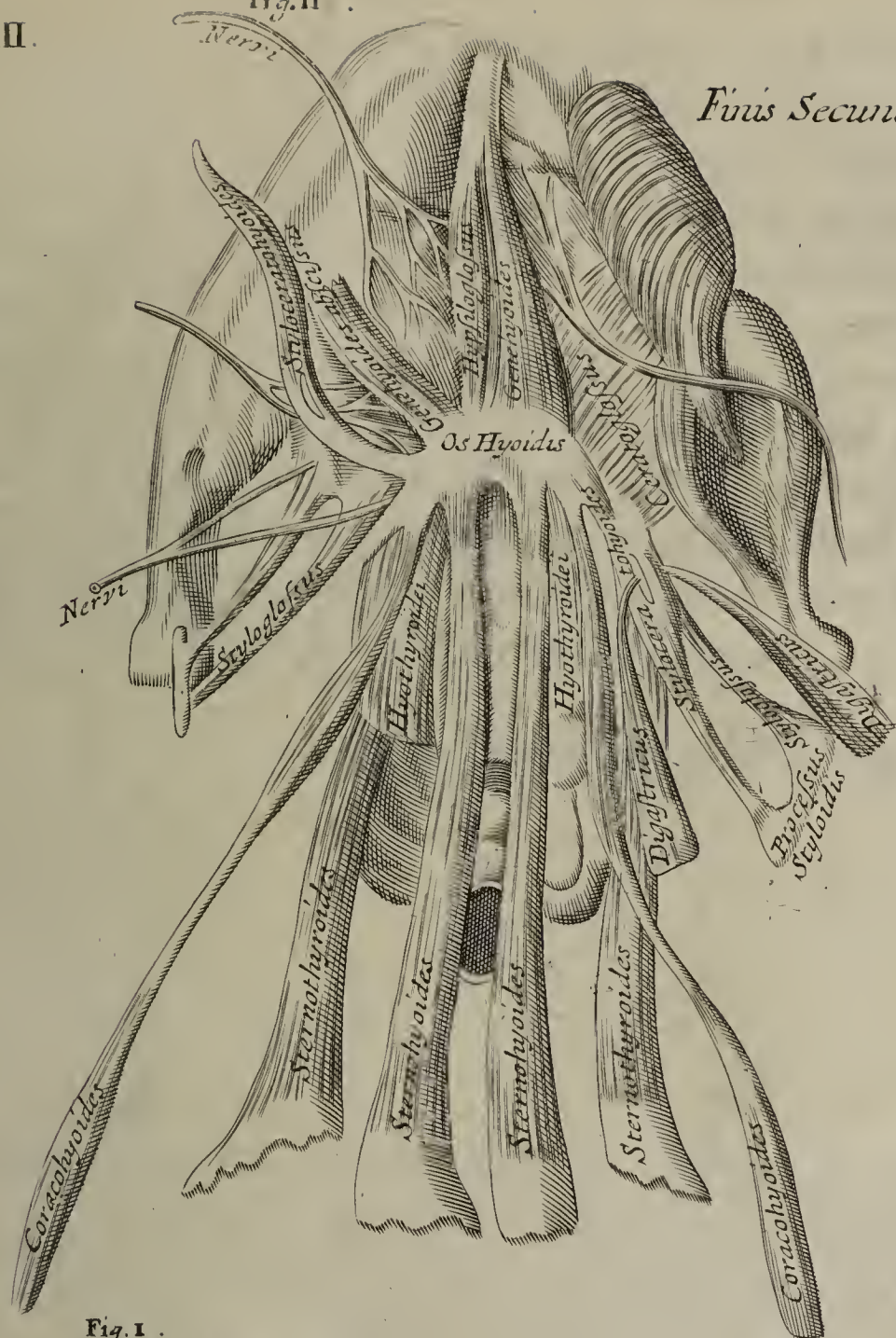
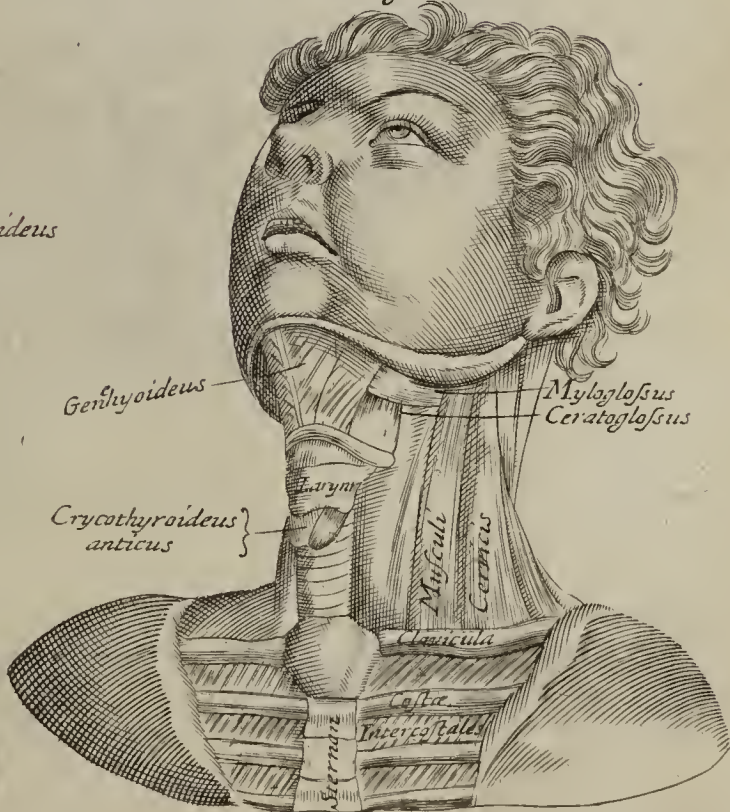
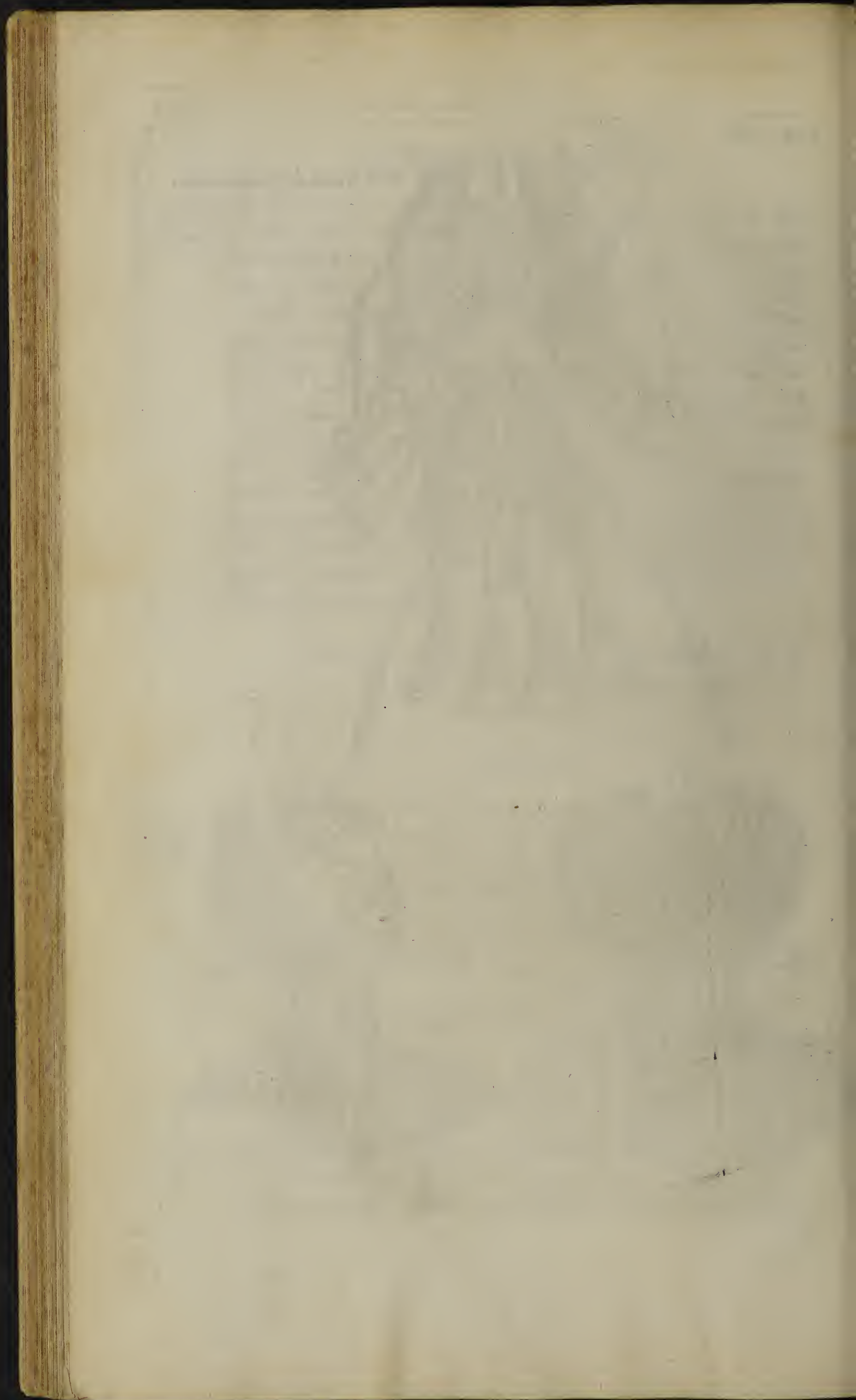


Fig. I .



Fig. III





of strong Ligaments, whose Union is scarcely divisable, their Sinews being well fitted to the Heads of the *Occiput*; whereupon they are so firmly fixed in their proper Cavities, that they cannot readily start out, by the motions of the Head; which are brought forward in flexure on the first *Vertebre* of the Neck by these pair of *Muscles*, as Dr. *Collins* writes, and they being long thick *Muscles*, (arising partly out of the top of the *Sternum*, and partly out of the *Clavicle*) and ascending obliquely by the Neck, are inserted into the *Processus Mam-miformes*, which being contracted, do draw the Head forward, pulling the Chin towards the upper part of the *Sternum*.

These in aged People are very conspicuous.

This you have at Tab. VIII. Fig. III.



The first of these is the
 fact that the system of
 the world is not a
 simple one. It is a
 complex one, and it is
 one that is constantly
 changing. It is a system
 that is not only
 changing, but it is also
 becoming more and more
 complex. It is a system
 that is not only
 changing, but it is also
 becoming more and more
 complex. It is a system
 that is not only
 changing, but it is also
 becoming more and more
 complex.

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 complex. It is a system
 that is not only
 changing, but it is also
 becoming more and more
 complex.



H. J. : 1891

Lecture III.

Having these following *MUSCLES* belonging properly to it, *viz.*

<i>Hyothyroides,</i>		<i>Abductor Oculi,</i>
<i>Sternothyroides,</i>		<i>Laxator externus,</i>
<i>Cryothyroides,</i>		<i>Tensor internus Tympani Auris,</i>
<i>Cryoarytænoides Lateralis,</i>		<i>Longus,</i>
<i>Thyroarytænoides,</i>		<i>Scalenus,</i>
<i>Cryoarytænoides Posticus,</i>		<i>Serratus Major,</i>
<i>Aritænoides,</i>		<i>Serratus minor anticus,</i>
<i>Stylopharyngæus,</i>		<i>Subclavius,</i>
<i>Sphenopharyngæus,</i>		<i>Intercostales externi,</i>
<i>Cephalopharyngæus,</i>		<i>Interni,</i>
<i>Oesophagæus,</i>		<i>Triangularis,</i>
<i>Sphenopalatinus,</i>		<i>Diaphragma,</i>
<i>Pterygopalatinus,</i>		<i>Musculus Cordis,</i>
<i>Obliquus major cum Trochlea,</i>		<i>Detrusor Urinæ,</i>
<i>Obliquus minor,</i>		<i>Sphincter Vesicæ,</i>
<i>Elevator,</i>	} <i>Oculi,</i>	<i>Sphincter Ani,</i>
<i>Depressor,</i>		<i>Levatores Ani,</i>
<i>Adductor,</i>		

Hyothyroides.

THIS Muscle ariseth fleshy from the whole side of the *Os Hyoides* at its *Basis*, and running along with right *Fibres*, is inserted into the lowermost and lateral part of the *Scutiformal Cartilage*, and by attolling it, doth dilate its cleft: Upon your raising this Muscle clear from its Origination and Insertion, you will with ease find out all the other *Muscles* of the *Larynx*; and thence is it, that when we would form a sharp voice, we do usually raise up our *Larynx*.

This Muscle being contracted by raising up the *Larynx*, does force the Nutriment towards the entrance of the Gullet in its order to Deglutition, which is facilitated by the *Epi-*
glot

This contracts the Larynx, and brings it upwards.

glot closing the head of the Wind-pipe, for hindring the falling of the Nutriment into its Cavity, in its passage over it.

This you have at Tab. IX. Fig. I, II. and at Tab X. Fig. III.

Sternothyroides.

*This extends
the Larynx
and brings it
downwards.*

THIS Muscle ariseth fleshy and broad from the upper and inner part of the Sternon, and keeping his Dimensions, creeps up with straight Fibres along the *Aspera Arteria*, and is inserted into the lower part of the *Scutiformal Cartilage*, and having prest the *Scutiformis*, it narroweth its cleft.

It's generally allowed, that this with its Partner, working, do draw down the *Larynx*, by lengthening the Pipe between the *Rima* and Cleft of the Tongue.

This you have at Tab. IX. Fig. I, II. and at Tab X. Fig. III.

Cricothyroides.

*This brings
the Cartilage
obliquely down-
wards.*

THIS being a short and thin fleshy Muscle, doth take its origination from the forepart of the *Annular Cartilage*, and ends at the Sides of the *Scutiformis*; and hence it takes the name of *Cricothyroideus Anticus*, and is supposed to bring the *Cartilage* somewhat obliquely downwards, it arising in the fore and lower parts of the *Larynx*.

When it is contracted, it extends the *Annular Cartilage*, and opens the Cleft, for making a deep and greater Voci-feration.

This you have at Tab. IX. Fig. I. and at Tab. X. Fig. III, IV.

Crycoarytenoides Lateralis.

*This extends
it Obliquely
lateral.*

THIS Muscle is made short, small and fleshy, arising at the sides of the lower part of the *Annular Cartilage*, and in its oblique Ascent is inserted into the outside of the *Arytenoides* laterally, not far off from the former, opening the *Larynx* by the Oblique Deduction of its *Cartilages*.

Obs.

Fig. 3.

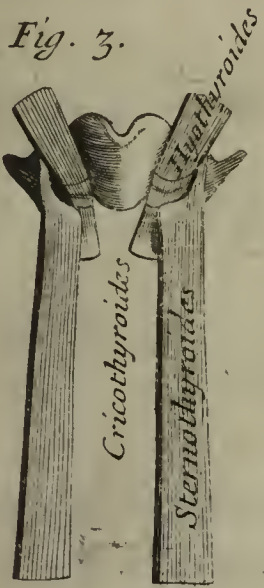


Fig. 2.

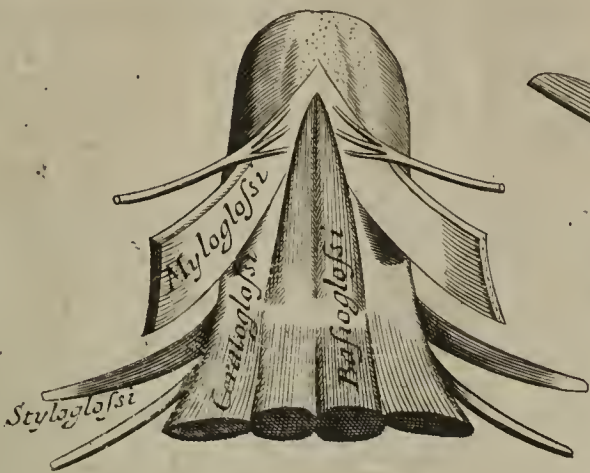


Fig. 1.

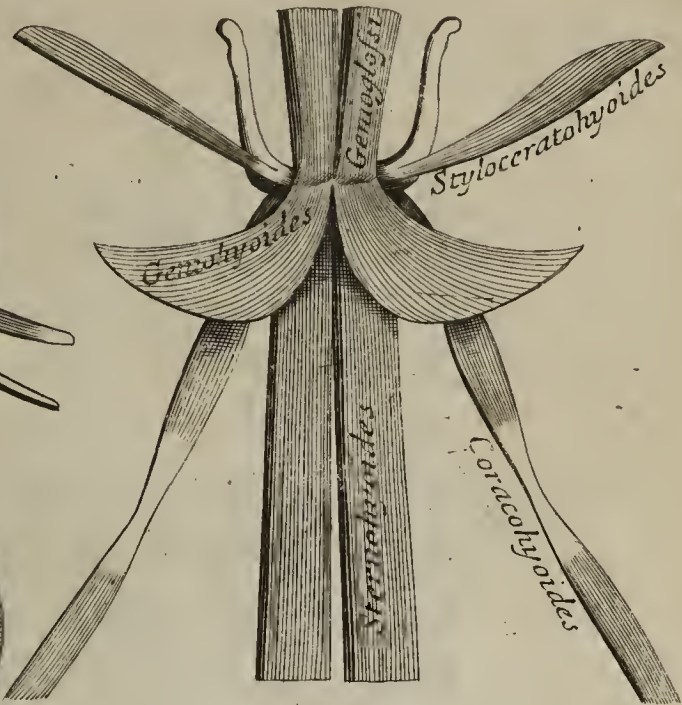


Fig. 5.

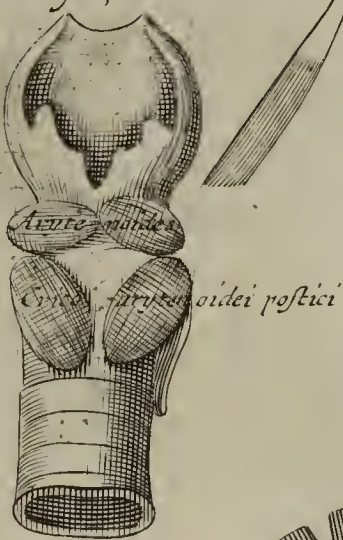


Fig. 4.

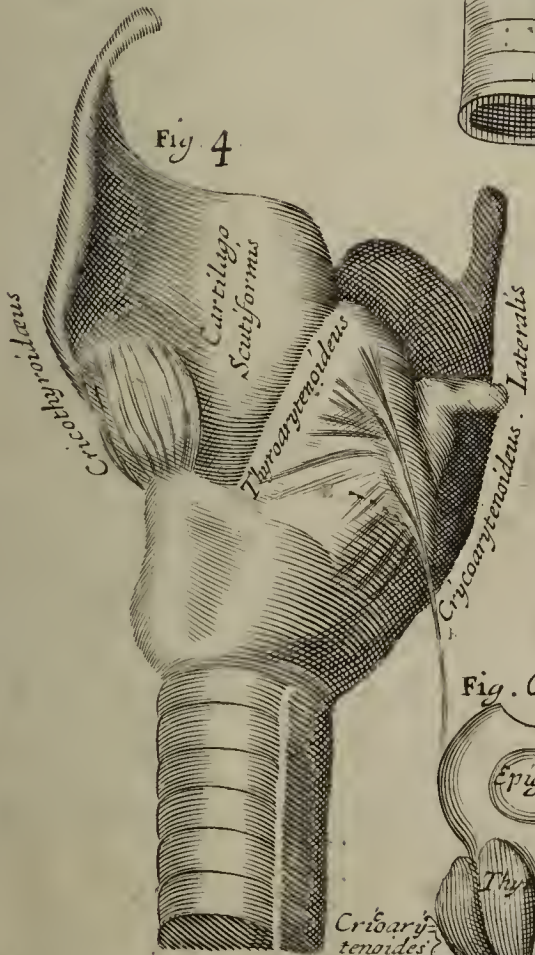


Fig. 7.

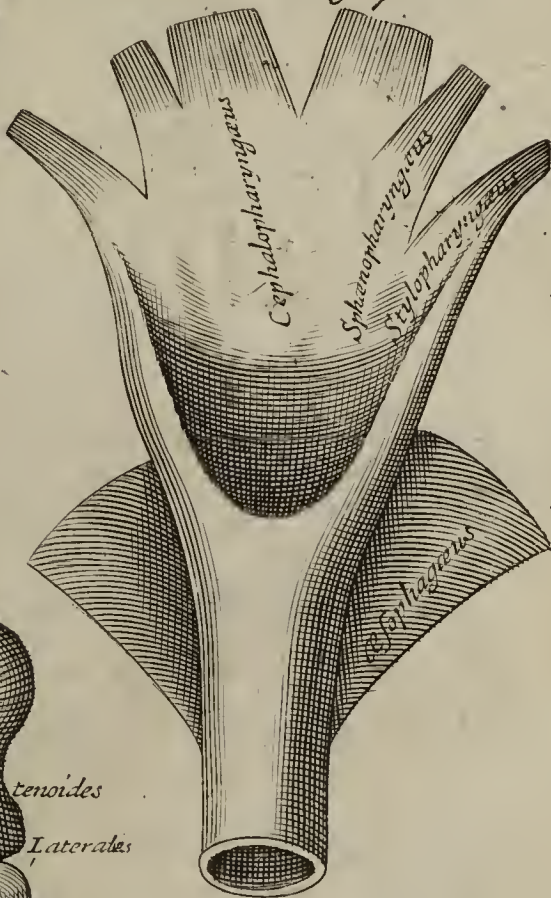
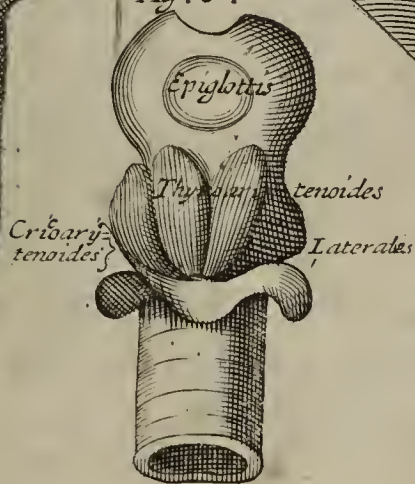
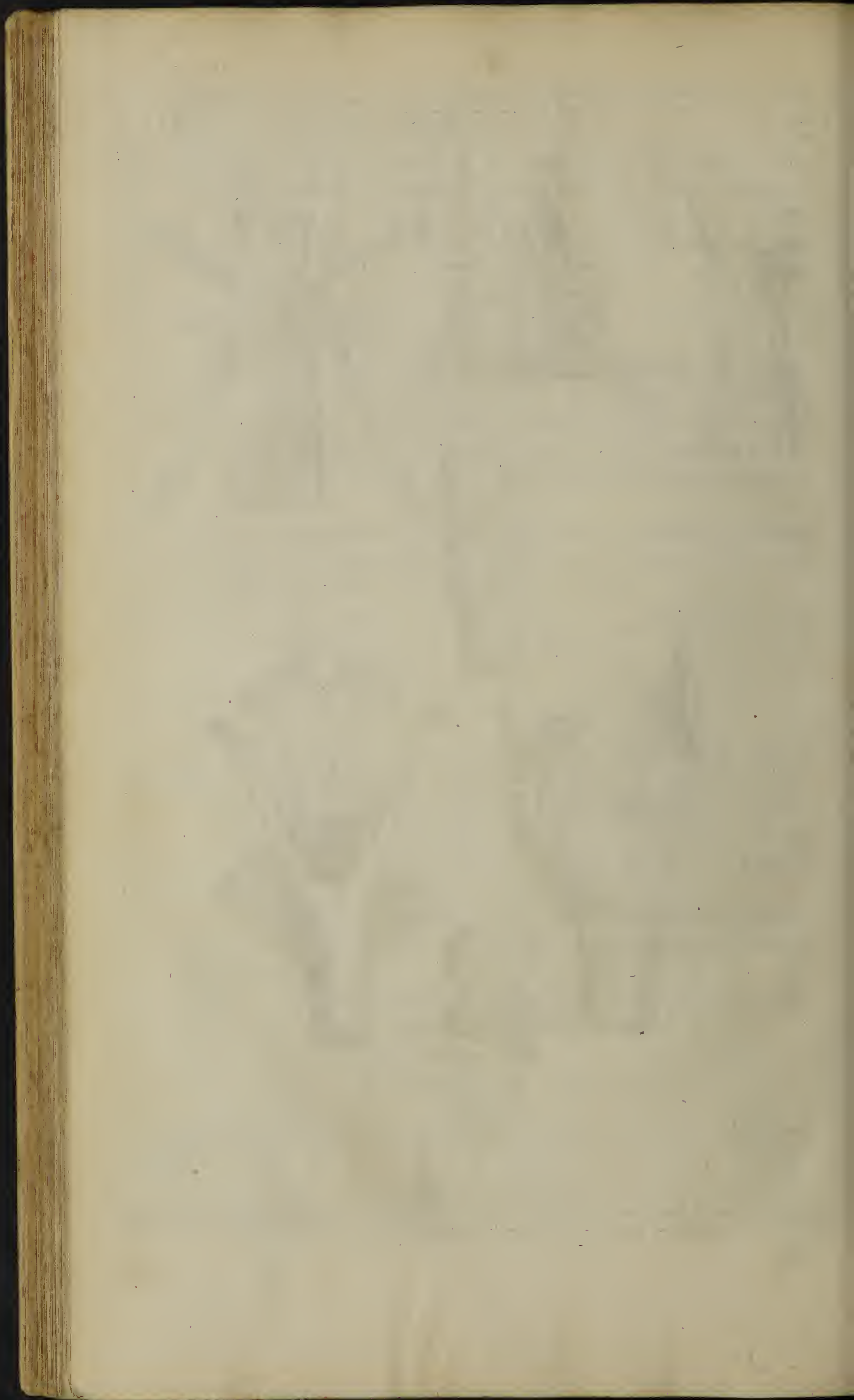


Fig. 6.





Obs. Here we may observe, that by how much the second Pair of *Contracters* do bring the *Cartilage* to a mutual closure, the other Pair of *Extenders*, do bring it outwards, and open its Cleft.

This is shewn at Tab. X. Fig. IV. and Fig. VI.

Thyroarytænoides.

THIS Muscle ariseth fleshy and broad, and is the largest of all the proper Muscles of the *Larynx*, and is Transversely implanted into its Cavity, and being carry'd upwards lengthways, is implanted at the fore parts of the *Arytænoides*, which makes the *Glottis*, the which constringing, it shuts the *Larynx*. *This contracts it.*

This Muscle is best found out, by dividing the *Cartilago Thyroides*, from the *Crycoides*, *Arytænoides*, and subjacent Muscles, the Coats of them being carefully preserved, after which this will plainly shew it self.

This is shewn at Tab. X. Fig. IV. and Fig. VI.

Crycoarytænoides Posticus.

THIS, by *Casseri*, is called *Par Cucullare*, it bordering on the back part of the *Larynx*, being much of a Quadrangular Figure; it arising fleshy from the back part of the *Cricoides*, and marching Obliquely upwards, filling its Cavity with its *Fibres*, is implanted in the lower part of the *Arytænoides*, and by dividing its *Cartilages*, does open the *Larynx*. *This extends the Larynx.*

This is said to extend the *Arytænois*, and by bringing it backwards to the outward parts, does open the *Epiglot*, which is easily shewn, upon turning the Muscle back with your Knife, where you will plainly see the *Arytænoida Cartilage* readily open upon it.

This you have at Tab. X. Fig. V.

Arytænoides.

This Obliquely contracts it.

THIS is a very small Muscle, and fleshy, and arising with Oblique Fibres from the *Arytænois*, and joyning its self to the *Cricois*, is inserted into it, seeming to joyn themselves together:

This moves the *Arytænois* Obliquely, and to either side, and by constringing its *Basis*, does shut the *Glottis*:

Obs. Its action is very remarkable, viz. When we forcibly stop our Breath for some time, we do obstruct the motion of the *Muscles* of the Trunk, whose use is imployed in Expiration. Here we have Mr. *Cowper* shewing his kind Respects to Dr. *Crown*, (who was so good a Friend to him as he himself elsewhere acknowledgeth) in telling us he can by no means approve of his Opinion about this *Muscle*.

This is shewn at Tab. X. Fig. V:

Stylopharyngæus.

This does dilate the Gullet.

THIS is allowed one of the third Pair, it arising with a sharp and fleshy beginning from the inner part of the *Styloidal* Process, and Obliquely Descending with its thin Body, expands it self at its Termination of the former. This pair acting as *Veslingius* and others allow, doth bring the *Fauces* upwards and dilate them, and are also said to enlarge the Cavity of the Gullet: Others say that this is a Constrictor:

This you have at Tab. X. Fig. VII:

Sphænoparyngæus.

This dilates the Fauces.

THIS is one of the second Pair, and this with its Partner is allowed to promote or help forward our Deglutition, and that was the reason they are so planted in this place, viz. at the upper part of the *Oesophagus*, they arising thin and nervous, near the Appendix of the *Os Cuneiforme*, and falling down by the inner Cavity of the *Pterygoides*, is in-

inserted by a small Tendon into the skinny part of the Palate, from whence the *Gargareon* does seem to arise, and does dilate the *Fauces*.

Obs. Neither is this or its Partner to be raised fair without much difficulty, and to find them, after you have raised the *Larynx* and the *Oesophagus*, leave the *Fauces* entire; then divide the *Fauces* themselves from the *Os Palati*, till you arrive at the Cavity, then carry your Knife close inwards to the *Os Cuneiforme*; and when it is thus divided, you will meet with both their Originations, which you may dissect with great Ease.

This is another *Muscle* left out by Mr. *Comper* in his aforesaid Book, and yet he tells us his is an entire History: I only mention it, to let the world see how careful he has been in giving us such an entire History as he Prints in his Title Page.

This you have at Tab. X. Fig. VII.

Cephalopharyngæus.

THE *Oesophagus* or Gullet, being made as a Tube or hollow Trunk, to transmit the Aliment from the Mouth to the Stomack, is a Structure made up of *Muscles*, *Membranes*, and the like, whose motions are chiefly performed by seven *Muscles*; this being generally allowed one of the first Pair. It arising from the *Cranium*, and the first *Vertebre* of the Neck, where they are joyned, and in its Descent, is implanted into the sides of the *Os Hyoides*, *Cartilago Scutiformis*, and the beginning of the *Oesophagus*, from whom he seems to derive his Coat, and by attolling it, does at the same time constring the *Fauces* in Deglutition, it taking its Name chiefly from its Origination: This is another *Muscle* left out by Mr. *Comper* in his *Anatomia Reformata*.

This contracts the Fauces, and thereby do elavate them.

This is shewn at Tab. X. Fig. VII.

Oesophagus, or Sphincter Gulae.

This contracts the Fauces

THIS is allowed the seventh *Muscle*, and is both a fleshy and broad *Muscle*, encircling the *Oesophagus*, it taking its Origination from each side of the Buckler Cartilage, and gives afterwards a soft fleshy covering to the *Gullet*, and by its variety of *Fibres* which it allowed it, is said to contract the Cavity of it; by which it doth at the said time force the Aliment forwards in its passage into the Stomack.

This is shewn at Tab. X. Fig. VII.

Sphænopalatinus.

This attels the Palate, and brings it backwards.

MAN has consigned to his Ante-chamber an upper Portal finely hollowed within, for the better tuning of his voice, and assisting of his Tongue in the Articulation of Letters, as also for the better indulging our Palates in eating or drinking savoury Meats, or pleasant Drinks; and as it hath variety of parts allowed it, so it hath given it these two pair of *Muscles*, which the late worthy Dr. CROWN has thus named, viz. *Sphænopalatinus* and *Pterygopalatinus*: This arising from the *Os Sphænoides*, and with a broad Tendon, doth insert its self into the sides of the *Glandula Palati*; where becoming a round fleshy Belly, and afterwards growing less near its Insertion, does carry the same Body in it to the back-part of the *Gargareon*.

Obs. From the Situation and Action of these *Muscles*, with the *Pterygopalatini*, may some account be given, how the *Uvula* being relaxed, is so easily reduced, by thrusting the Thumb bent towards the Palate, or these *Muscles*.

This you have at Tab. VIII. Fig. II.

Pterygopalatinus.

THIS ariseth from the same Process of the *Os Sphenoides*, as did the former, and descending like him lengthways, is inserted into the inner Cavity of the *Os Pterygoides*, where its Tendon does seem to terminate; it first running over a part of the aforementioned Bone, and then is seen to insert its self at the forepart of the Palate.

This brings the Uvula downwards.

This you have at Tab. VIII. Fig. II.

Obliquus major cum Trochlea & Musculo Trochleari.

THE Eye, that Orbicular Body planted in the Front, for securing us in all our Actings and Conduct, is a System made of many parts, which have a Dependence on each other, and every of which are Subservient to this Noble Member, for the better obtaining of our Sight: I shall not enlarge any farther on this part, but only treat of the Muscles given to it; Beginning with this.

This brings the Eye inwards.

Most Authors do ascribe three Names to this Muscle, calling it *Obliquus* from its Position, *Trochlearis*, from its Cartilaginous Pulley, through which it passeth, and *Longissimus* from its length, being considered with the other Muscles of the Eye. Now this Muscle being both longer, and seated above the other, has the same Origination with the third right Muscle, it getting its thin Body into a Cartilaginous Pulley, which being made sharp and fleshy, does through it ascend Obliquely to the upper part of the Eye, and ends near the Tendon of the *Obliquus minor*, and being assisted with this Pulley, does turn the Eye Obliquely inwards towards its inner Corner or Canthus.

Use. This Muscle by some is called *Amatorius*, or the Ogling or Rowling Muscle, from the use Lovers do make of it with their Mistresses: Several Fibres are allowed to pass from the *Periostium* to the forementioned *Trochlea*; which according to the Opinion of some Anatomists, were made on purpose for forming of this *Trochlearis*, tho' the use of them does seem rather designed for a more steady Fixing or Tying of the *Trochlea*, than any Muscular Motion.

M. This may serve as an Answer to *Medicafter* as to its Description, as well as to others, and I think it is plainly evident to any man, in Tab. XI. Fig. III, V. and was so in my first English Book at Page 20, altho honest *Medicafter* was pleased to say, I have neither given it its Figure or Use.

This is shewn at Tab. XI. Fig. III, and V.

Obliquus Minor.

*This brings
the Eye ob-
liquely down-
wards.*

AS the former shew its self the longest, so this appears as the shortest of the *Muscles* belonging to the *Eye*, it ariseth from the lowermost Margent, or from a Chink in the lower part of the *Orbite* of the *Eye*; in its Origination fleshy, small, and not altogether round; and being carried Obliquely all along upwards towards the outer *Canthus* of the *Eye-lid*, does terminate with a short, but Nervous Tendon, near the Verge of the *Iris*, or not far from the Tendon of the *Abducent Muscle*, and in its Contraction does pull the *Eye* Obliquely downwards towards the lesser *Angle*.

Use. These two *Oblique Muscles* are of great Use in enlarging the Sight of the *Eye*; for by the various Movings of these *Muscles*, as bringing it upwards or downwards, inwards or outwards, the *Eye* becomes more expanded, and the Objects are made more plain and visible to us.

This is shewn at Tab. XI. Fig. III, and V.

Elevator Oculi.

*This lifts up
the Eye.*

THIS *Muscle* ariseth from the upper *Orbite* of the *Eye*, sharp and fleshy, not far from that part where the *Optick Nerve* appears; and then becoming a fleshy Belly, is inserted into that Coat of the *Eye* called *Cornea*, where it is clear, and near the *Iris*, by a thin and Membranous Tendon.

This being contracted does lift up the *Eye*.

This by some is called *Superbus* from its lofty Ascent, well representing a haughty Disposition, which is fairly expressed by turning up of the *Eye*.

This you have shewn at Tab. XI. Fig. III. and V.

Fig. I.



Fig. III.

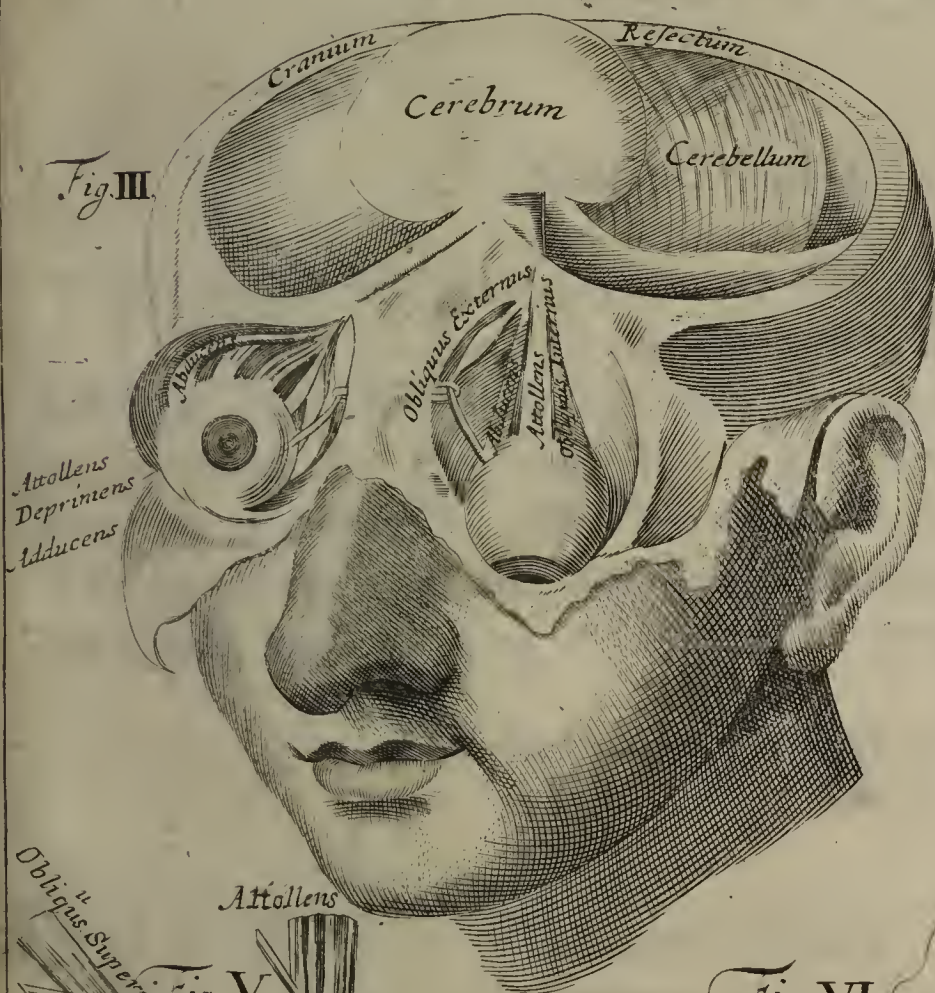


Fig. III.

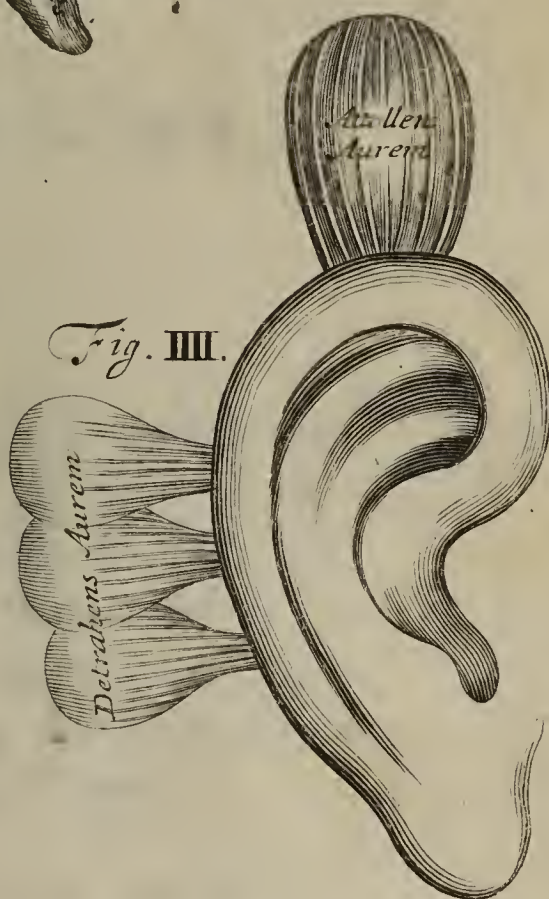


Fig. VI.

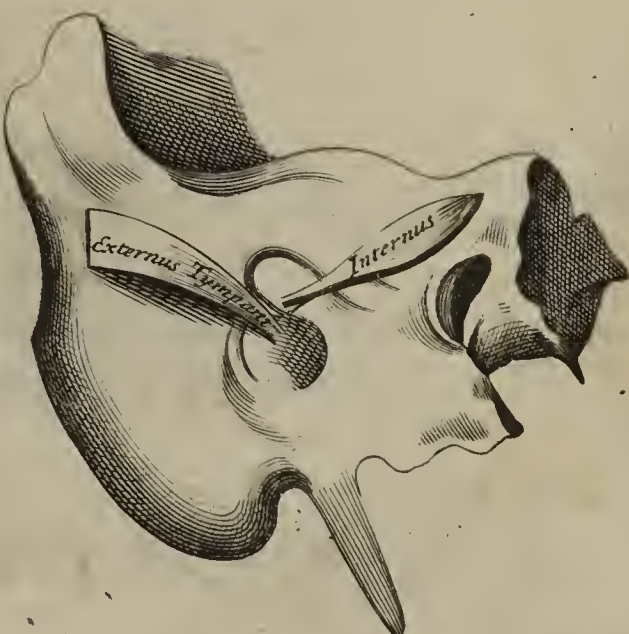
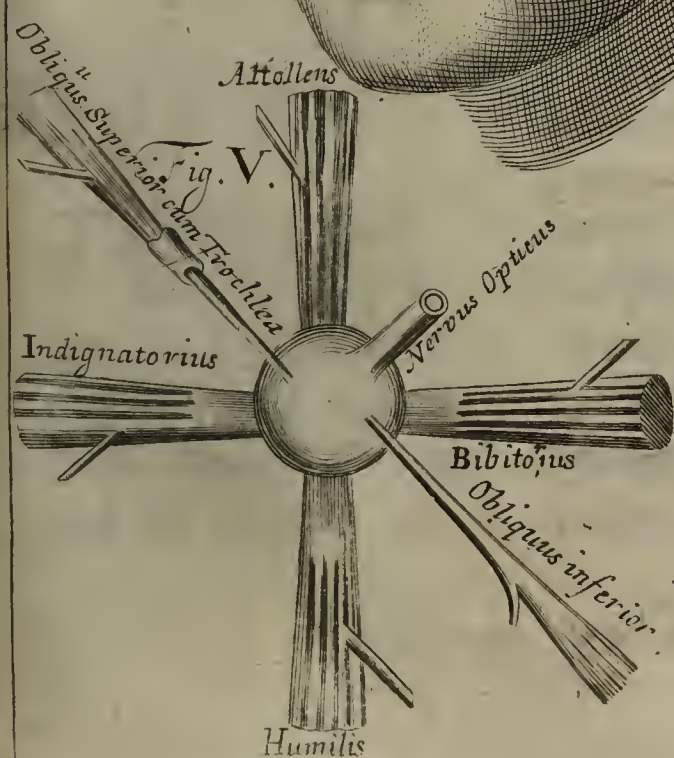


Fig. V.





Depressor Oculi.

THIS being less than the former, hath much the same Origination, it arising from the lower part of the same Orbit, and carries in it the same Insertion towards the opposite part of the Bulb of the Eye. *This brings the Eye downwards.*

This is an Antagonist to the former, carrying no great Disproportion of Vigour in it, there being required less force to depress, than to elevate; by some this is called *Humilis*, as being the Index of Humility.

This is shewn at Tab. XI. Fig. III. and V.

Adductor Oculi.

THIS hath its Name from the use which is made of it, it bringing the Pupil of the Eye towards the Nose: It arises from the Orbit of the Eye, near the beginning of the Elevator, drawing the Eye inwards towards the Nose, and is inserted to that part of the Cornea which is nearest the Nose. This by some is called *Bibitorius*, it directing the Eye towards the Glass, and bringing it towards an inward Angle. *This draws the Eye inwards.*

This you have at Tab. XI Fig. III. and V.

Abductor Oculi.

THIS by some Anatomists is called *Indignatorius*, or the Scornful Muscle, and Abductor from its Use, in bringing the Eye from the Nose; it arises from the outward Angle of the Eye, and hath the same Insertion with the former: When these Four do work together, they bring the Eye inwards, and do form a Tonick Motion. *This brings the Eye outwards.*

This you have at Tab. XI. Fig. III. and V.

Laxator Externus, or Externus Tympani Auris.

*This brings
the Tympa-
num forwards.*

AS the All-wise Agent hath planted the Eyes as our Watchmen before us, to guard and secure us from Accidents; so, at the sides of them are situated the Organs of Hearing, for the Reception of Sounds conveyed by the Orbicular Motion of the Air, naturally tending upwards.

In the upper Sinews of the Auditory Passage, Nature hath curiously interwoven a thin Muscle, which is properly said to be this, and is allowed to take its Origination in a fine Expansion formed of many Nervous Fibrillae, which running less and less gradually, are carried to the Membrane of the Tympanum, with a slender Tendon to the Malleus; and the Membrane of the said Tympanum being drawn upwards and outwards, by the Contraction of these Muscles, is hereby in its upper Part made more Tense for the better preserving the Sound, and sending it forwards to the inward Recesses of the Ear.

This Muscle, altho' it is one of the smallest Muscles in the whole Body, yet it is to be shewn entire, but not without Difficulty; great Care therefore is to be used in opening of the Os Petrosum, about that thin part near the Temples, whether it be done with a small Chissel, or Filing, that so the pieces of the Bones being taking out by Degrees, this Muscle may not receive any Prejudice; the like Care is to be observed in shewing the following Muscle.

This you have at Tab. VII. Fig. IV. and at Tab. XI. Fig. I. VI.

Laxator Internus, or Internus Tympani Auris.

*This brings
it obliquely
inwards.*

THIS is planted in a Boney Channel, and takes its Origination where the Petrose Process joyns its self with the Os Cuneiforme, and branching into two small and very thin Tendons, one of which is implanted into the upper part of the Malleus, and the other into its Neck; where, being inserted into it, doth draw it inwards and forwards, with the Membrane of the Drum annexed to it: Whereupon the Membrane is stified by the Contraction of these two Muscles, as by two Antagonists; the one drawing it upwards and

and outwards, the other drawing it inwards and forwards, which ballancing each other, do brace up the Membrane so, as to make it Tense for the apter receiving the Appulses of Sounds.

This you have at Tab. VII. Fig. V. and at Tab. XI. Fig. I, VI.

Longus Colli.

THE Neck is generally allowed to be framed as a security of the Wind-pipe, in order to Respiration, and this *Muscle* *This contracts the Neck* belonging thereto, ariseth with a sharp and fleshy beginning from the forepart of the Body, and from the fifth and sixth upper *Vertebres* of the *Thorax*; and being enlarged in its middle, does run upwards under the *Oesophagus*, and is joyned to all the sides of the *Vertebres*, ascending till he reacheth the first of them, meeting with *Scalenus*, and then they both insert themselves by a sharp Nervous Tendon into the *Transverse Process* of the first *Vertebre* of the Neck: By the Benefit of this *Muscle*, and its Partner, the Neck is brought directly forwards, one only working, it is brought laterally.

This you have at Tab. VIII. Fig. III.

Scalenus, or Triangularis.

THIS ariseth from the first and uppermost Rib of the *Thorax*, broad and fleshy, and then narrowing its self in its upper Course, he bestows *Transverse Fibres* upon all the *Transverse Processes* of the Neck, and is inserted as the former, and doth assist it in its motions; this *Muscle* hath a particular Cavity allowed it, through which the *Arteries* do descend to the Arm, and the *Veins*, thence ascending, do pass. *This contracts as the former.*

This you have at Tab. VIII. Fig. III.

Serratus Major Anticus.

*This brings
the Scapula
forwards and
downwards.*

THIS hath its Name from its Figure and Make, as also from its Situation; for it is planted in the side of the *Thorax*, with a Singular broad and fleshy Substance passing from the inner *Basis* of the *Scapula*, to the 6th. or 7th. Ribs, according as *Riolan* describes it, it arising from the two upper Ribs even to the *Clavicle*, and the five inequal Extremities in the five true Ribs, and is implanted into two or three of the Bastard Ribs before they become Cartilaginous.

Spigelius and *Veslingius* supposeth its Origination *è contra*, and some of its distinct Teeth, or saw-like Indentions being intermixt with *Obliquus Descendens* of the lower Belly, do assist the said *Muscle* in its motions.

This is generally allowed to dilate the *Thorax*, and to bring the *Scapula* forwards and downwards, when its *Muscles* are relaxed, and may also be allowed to fasten the *Scapula* to the Breast.

This you have at Tab. XI. and at Tab. XII. both in and out of its place, and also at Tab. XIII.

Serratus Minor Anticus.

*This brings
the Scapula
upwards.*

THIS *Muscle* hath the name of *Minor* given it, from its difference with the former, and is so substrated to the *Pectoral Muscle*, that without great care be taken in raising it, you will necessarily borrow from it: It riseth fleshy from the four first upper Ribs, excepting the first of them; it arising as it were *Digitatim*, and is inserted fleshy at the *Coracoidal Process* of the *Scapula*, bringing it forwards to the *Thorax*; this and its Partner are allowed to promote the Dilatation of the Trunk in large Inspirations, when the *Scapula* is said properly to be raised by these *Muscles*, which when they are depressed, cannot perform the same without great Difficulty.

This you have at Tab. XIII. both in and out of its place.

Subclavius.

IT ariseth fleshy from the lower part of the *Clavicle*, and ^{This doth depress the} *Obliquely Descending* between the first Rib of the *Thorax*, being enlarged forwards, both with *Oblique* and *Transverse Fibres*, is implanted at the upper part of the first Rib near the *Sternon*. _{Clavicle.}

Use. Upon drawing or bringing of which upwards and outwards, at the same time it dilates the *Thorax*.

Obs. Its Use, by *Spigelius*, is to depress the *Clavicle*; when it is moved upwards with the *Scapula*, the *Clavicles* usually raising themselves upwards upon the Elevation of the *Scapulae*, provident Nature hath here planted this *Muscle*, as a Stay to keep them down, and this is apparent enough, as *Spigelius* observes; in that, whenever the *Clavicle* is fractured near the *Sternon*, the next part is visibly seen to ascend, and the part next the *Scapula* together with the Arm apparently falls down; but if a Fracture happens near the *Scapula*, then neither parts are elevated; which happens wholly by the Interposition of this *Muscle* here planted, and its Strength given it to perform the same.

Therefore *Medicaster* had a sudden Mist o're clouded his *Opticks*, when he tells you I had no *Ichon* for this *Muscle*, which was but as apparently described in its proper place, then, as it is now at *Tab. XIII.*

Intercostales Externi.

THESSE *Intercostal Muscles* with the *Ribs*, *Sternon*, and *Diaphragme*, are all engaged in diverse Motions, all contributing towards that main Motion of the *Lungs*: These *Intercostal Muscles*, let in between the *Ribs* in *Oblique Positions*, are formed in two Ranks, outwardly and inwardly made up of numerous *Equidistant Fibres*, strongly intersecting each other. ^{These do dilate the Thorax.}

These *Muscles* have their Names from their Situations, and do arise from the transverse process of the *Back*, where the *Ribs* are joyned, and proceeding fleshy, do adjoyn themselves

M from

from the lower Edge of the upper Rib externally, to the upper part of the lower Rib, they being both thin and fleshy.

This double Set of *Fibres* intersecting these *Muscles*, was wisely thus framed by Nature, to assist each other now and then in a convenient Motion, by reason two Ranks of *Oblique Fibres* would else distort the *Ribs* in the motion of the Breast: Nature therefore hath prudently contrived that all the *Fibres* discussing each others, and affixt to the Margents of the *Ribs*, should jointly produce the same Operation of moving them upwards and outwards at the same time, as Dr. Collins worthily observes.

This you have at Tab III. and at Tab. XIII.

Intercostales Interni.

*These are said
to constringe
the Thorax.*

THESE have their beginnings where the *Ribs* do begin to turn inwards, then running from the lower to the upper parts of the *Ribs*, not only to the *Cartilage*, but under that to the *Sternon*, they working contrary to the former; for these in Expiration do bring the *Thorax* inwards and downwards, by which it contracts its self, making its Cavity thereby less.

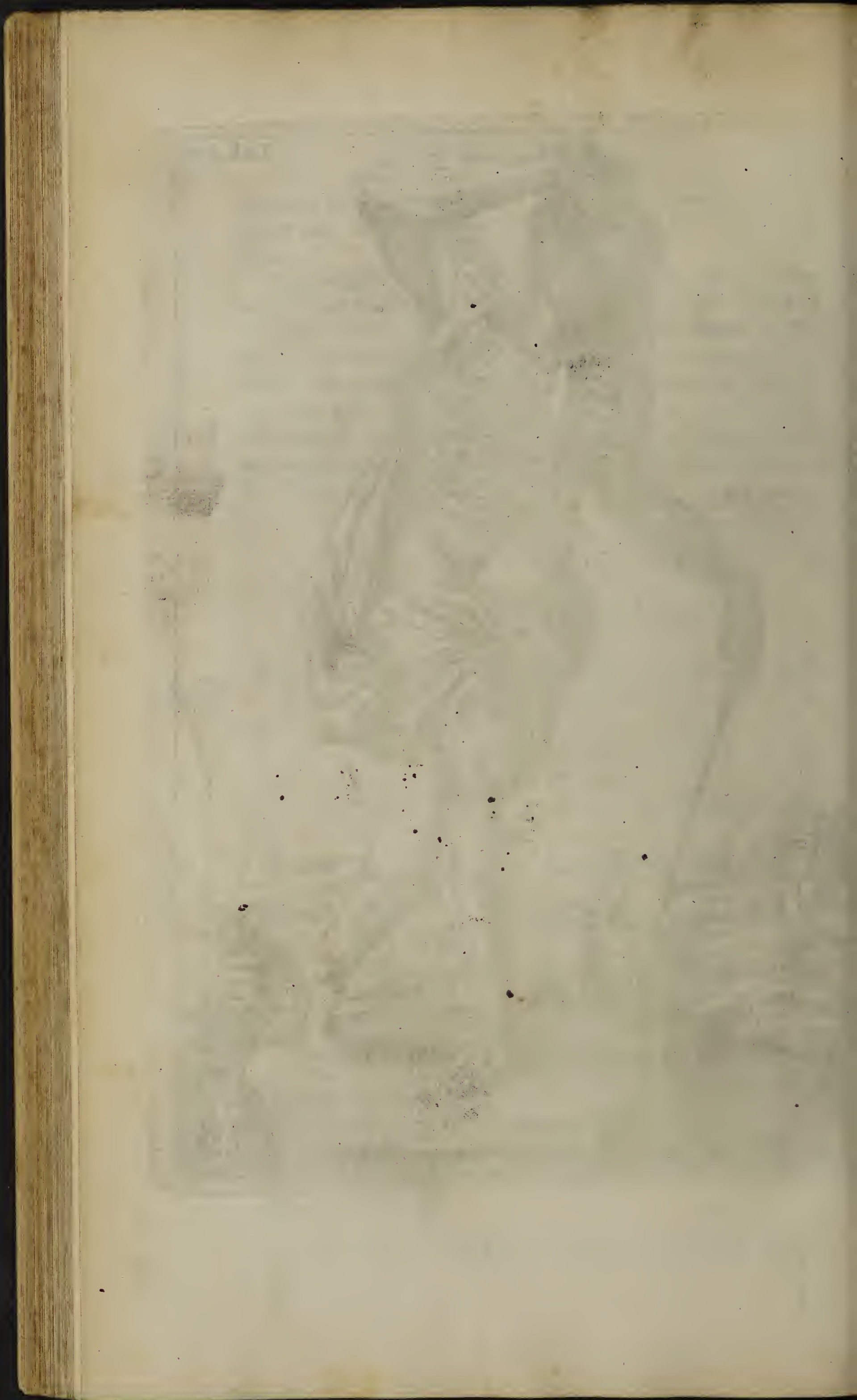
These you have shewn at Tab. IX. Fig. III. as also at XVIII.

Triangularis, or Pectoralis Internus.

*This doth
constringe the
Thorax.*

THIS Muscle is improperly called *Triangularis*, because it has no great part of a Triangular Figure in it: It ariseth from the lower part of the *Sternon*, whence its upper part ariseth, and its lower falling down to its Insertions at the Boney Endings of the 4th, 5th, 6th, 7th, and sometimes at the 8th *Ribs* near their *Cartilages*; by the Adduction of which, they are said to constringe the *Thorax*, and bend it somewhat forward.

This is not to be shewn by Figure, as I said in my First.



Diaphragma.

THIS by some is called *Septum Transversum*, it Transversely dividing the Trunk of our Body into two Ventrers, being made as Nature's Partition Wall, keeping the middle from the lower Belly; partly tendinous and partly fleshy on the right, from two or three of the *Vertebres* of the *Loins*, and round the Termination of the *Ribs*, and *Ensiformal Cartilage*, and carrying its Tendon in its Centre: It was chiefly designed for promoting our free Breathing, it being assisted with some others of the *Intercostal Muscles*, carrying in it a Circular Figure, and perfectly different in its Sight from the rest of the *Muscles* in humane Body, its Capacity answering the Transverse Bottom of the Trunk, its middle Substance being formed of fleshy *Fibres* running through it, like so many Lines from a Circumference to the Centre; and when they enter the middle, they are entertained and embraced with another Set of *Tendinous Fibres* intersecting them: Its Membrane is double, the upper part whereof expands the *Pleura*, being here planted as its *Mediastinum*, or Partition Wall, and its lower part is carryed downwards towards the *Peritonæum*: It is drawn out into two Fleshes about the *Lumbar Vertebres*, and is strongly tied to the *Ribs* by two Tendinous parts, which fall down in their March even to the *Os Sacrum*, through which the descending Trunk of the great Artery, and the *Vena Azygos* doth pass in its Ascent; it is shortned about its middle towards its right side, and in its Tendinous part, to make a Passage for the *Vena Cava*; and in the left in its fleshy part, it receives the *Oesophagus*, and the Stomack Nerves:

This is a partition between the middle and the lower Belly.

Use. In Inspiration it turns into a plain, and from a crooked or convex Laxity, it apparently comes into a plain again; but in Expiration, it is made Tense, but is then soon relaxed.

Obs. When this *Orbicular Muscle* moves it self, it contracts the upper and lower fibrous *Diameters* or *Semicircles*; so that the Cartilaginous Terminations of the Bastard *Ribs* are drawn downwards, and its *Viscera* forced downwards with them, at the same time, whereby the Breast is lengthened, and

its Bosom enlarged to give a Reception to the distended Lungs in Inspiration: Whereas in Expiration it hath a *Diastole*, as freed from Motion by the Relaxation of its fleshy *Fibres* (planted in its Circumferential part) performed by the *Abdominal Muscles* as Antagonists, which by pressing the forepart and sides of the *Abdomen* inwards, do at the same time force the *Viscera* of the lower *Belly* upwards towards the Trunk, whereupon the Centre of the *Diaphragme* looseth its plain, as Dr. Collins very worthily observes.

This you have at Tab. XVIII.

I Next should have here discoursed of the *Heart*, which *Hypocrates*, and almost all modern *Anatomists* do allow to be a *Muscle*, and which indeed at this day is so held to be without Contradiction, but I shall not much enlarge on it here, Dr. Lower having very learnedly with *Borellus* and others discoursed of it elsewhere, shewing both its Figures and Uses: And I having at the end of this my Discourse, enlarged sufficiently in a concise and accurate Discourse on this Subject, by way of an *Appendix* thereto, wherein also I have presented the Reader with a short Discourse of the *Circulation* of the *Blood*, and its *Juices*, of which this *Salutiferous Liquor* is framed, to which I recommend him.

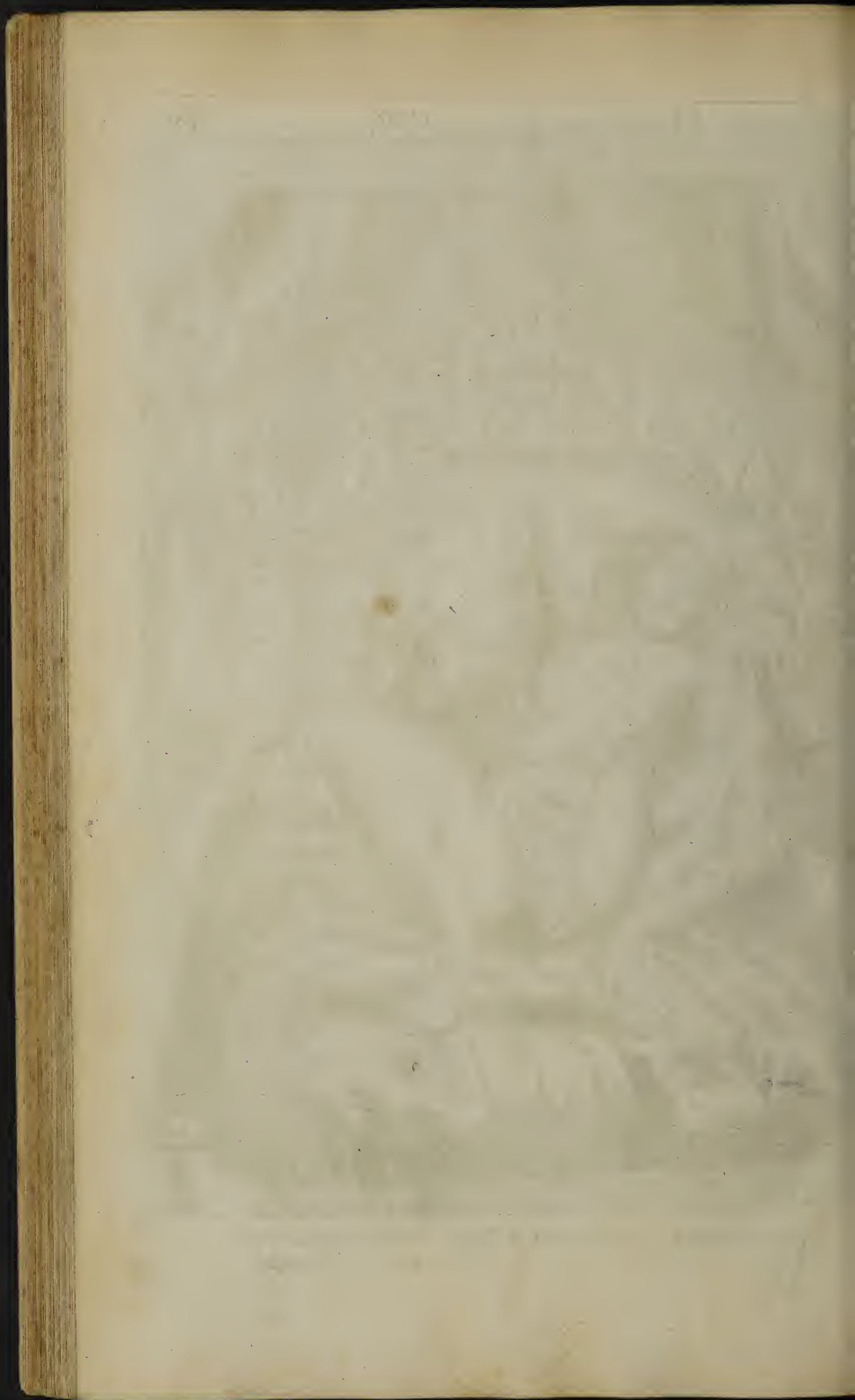
Detrusor Urinæ.

*This dis-
chargeth the
Urine.*

MAN having allowed him *Kidneys* as his useful *Colatures* or *Strainers* of his Blood; so, has he given him a *Bladder* as a proper Repository to keep in his *Urine* till it be sufficiently loaded therewith, and for this Use, Nature hath placed the *Bladder* with the Bottom upwards, and with its Neck downwards, and to the *Bladder* are allowed diverse *Muscles* helping forwards its Discharge, and others as properly made for hindring its involuntary Egression.

This by most *Anatomists*, is allowed the first proper Membrane of the *Bladder*, whose fleshy *Fibres* embracing it on every side, are compressed or contracted in our making of Water; and therefore it is fabulous what some Physicians do contend for; that besides this, and the following, many other





other *Muscles*, are allowed to the *Bladder*, but no Authority, hath admitted any others than this and the next, this we allowing only as the middle Coat of the *Bladder*, framed of fleshy *Fibres*, running lengthways, helping forwards the *Urin's* Excretion, contrary to the others, which are more Transverse, and therefore more properly allowed to hinder the involuntary discharge of the same.

This you have at Tab. VI. Fig. I.

Sphincter Vesicæ

THE Neck of the *Bladder* being very fleshy, is furnished with many Transverse, or rather Orbicular *Fibres*, which do contract its Neck, whereby the involuntary Egression of the *Urine* is prevented. *This closes up the Urinary Bladder.*

Borichius hath made curious Observations on these *Fibres*, saying that they do lessen the *Urin's* Passage, and this *Sphincter Muscle* being framed of different *Fibres*, is as an Antagonist countermanding the Tonick Motion of the Oblique Transverse, and right *Fibres* belonging to the Body of the *Bladder*, whereby the *Fibres* planted in the several Coats of the *Bladder*, are drawn into motion by Consent, according to the Action of the Nervous *Fibres* of the inward Coat making their various Contraction, hereby lessning its Cavity, and forcing the *Urine* contained in it towards the Neck, whereby the *Fibres* of this *Sphincter Muscle* being relaxed, the Passage is made open and free for the *Urin's* Exit; this is allowed to be planted in the upper part of the Neck of the *Bladder*, not far from the *Prostates*.

This you have at Tab. VI. Fig. I.

Sphincter Ani.

THIS from its use is called *Constrictor* or *Orbicularis*, it being annexed to the lower Margent of the *Os Sacrum*, it ariseth thick, large and fleshy, furnished with many Annular *Fibres* enwrapping the *Anus*, it being roundish and broad, joyning himself circularly to the *Rectum* near two inches in breadth, *This keeps up the Excrements.*

breadth, and is so closely annex to the *Cutis*, that it is scarce separable from it: And hence, therefore by some *Anatomists*, this is called *Cuticulosus*, or *Cutaneus*: This being contracted, does purse up the Perforation of the *Anus*, whereby it gives a Stop to the involuntary Exclusion of the Excrements; for which piece of Service, Nature hath planted this *Constrictor*, as a proper Officer to perform this piece of Service.

This you have at Tab. XVI. Fig. II. and at Tab. XVII.

Elevatores Ani.

*This draws
the Anus up-
wards.*

THESE are allowed to arise from the Ligament of the *Os Sacrum*, as also from part of the *Coxendix*, from which places they do take their Dimensions, and then descending down to the *Sphincter* and lower part of the *Rectum*, are inserted at its lower end into each side of the *Anus*.

These are best shewn before you remove the *Rectum*, *Vesica*, and adjacent parts; their cheif use is ordained by Nature, to keep the right *Gut* in its due place, and to reduce it, when it is forced down by any violent Expulsion of hard or gross Excrements.

This you have at Tab. VI. Fig. II. with the Rectum and Corpus Vesicæ.



Lecture IV.

Lecture IV.

In which are contained these following
MUSCLES, viz.

<i>Trapezius,</i>	}	<i>Obliqui Superiores,</i>
<i>Levator Patientiæ,</i>		<i>Obliqui Inferiores,</i>
<i>Rhomboides,</i>		<i>Transversalis Colli,</i>
<i>Latissimus Dorsi,</i>		<i>Spinalis Colli,</i>
<i>Serratus Posticus Superior,</i>		<i>Sacrolumbalis,</i>
<i>Serratus Posticus Inferior,</i>		<i>Sacer,</i>
<i>Splenius,</i>		<i>Semispinatus,</i>
<i>Complexus,</i>		<i>Longissimus Dorsi,</i>
<i>Recti Majores,</i>		<i>Quadratus Lumborum.</i>
<i>Recti Minores,</i>		

Trapezius, or Cucullaris.

THE Scapula being framed as Nature's Buckler, formed in a Triangular Figure, inwardly Exculpt with a Concave Surface, and with one Convex outwards, was properly designed for the Inarticulation of the Shoulder, to which are allowed variety of Muscles, fastning the Scapula to the Ribs, and Occiput to which it is annexed, as also to some Spines of the Vertebres of the Neck: This with its Partner covering the Back, does very well represent to us the Figure of a Monks-hood, it arising fleshy from the lower part of the Os Occipitis, and Tendinous from the Apex of the Spine of the last Vertebre of the Neck, and from the 8th. or 9th. upper Spines of the Thorax: And then narrowing its self, is inserted into the whole Spine, and broader part of the Clavicle; and according to its various Originations, and diversity of Fibres allowed it, it brings the Scapula obliquely upwards or downwards, or directly backwards, according to its variety of Fibres contracting themselves.

This variously moves the Scapula.

Divide this Muscle from its Partner, at their Originations

from the *Spines* of the *Vertebres*, and tracing it clear from the *Os Occipitis*, the *Muscles* underneath them will with great ease shew themselves.

This you have at Tab. XIV. both in and out of its place.

Levator Patientiæ.

*This brings
it upwards.*

THIS immediately lying under the former, as *Diemerbroeck* observes, doth arise from the second, third, and fourth, and sometimes under the 5th. *Transverse Processes* of the *Vertebres* of the Neck, which joining in one large fleshy Body, fixeth it self with a broad and fleshy Tendon into the upper and elated part of the *Scapula*, bringing it upwards and forwards, as also the *Arm* with it.

*This you have at Tab. XIV. and at Tab. XIX.
it is laid bare.*

Rhomboides.

*This brings
it backwards.*

THIS hath its name from its Figure, and affixeth the *Scapula* to the Neck, and the Backparts of the Trunk, it arising thin, broad, and *Quadrangular*, and fleshy, from the *Spines* of the three lower *Vertebres* of the Neck, and the upper of the *Thorax*; whence Obliquely Descending, becomes thick and fleshy, being inserted into the outward Basis of the *Scapula*, which it draws somewhat upwards and backwards.

In raising this *Muscle*, you must take care that you do not bring up the Tendon of *Serratus posticus Superior* with him, it joining its self very closely to it, and lying just under it.

This is commonly allowed to bind the *Scapula* to the Back; and hence is it, that in Old People, and Consumptive Persons, their *Scapulae* are seen so prominent, which chiefly happens from either the Weakness or Witheredness of this *Muscle*.

*This you have at Tab. XIV. and at Tab. XIX.
the same is laid bare.*

Prælectio Quarta TAB. XIII.





Latissimus Dorsi, or Aniscliptor.

THIS hath its first Name from its Largeness, and the other from its Use; it ariseth with a broad, thin and Membranous Beginning, from the *Apices* of the lower *Spines* of the *Vertebres* between the *Os Sacrum*, and the sixth *Vertebre* of the *Thorax*, and sometimes is seen to take its Origination from the upper part of the said *Os Sacrum*, and growing fleshy, is implanted into the *Basis* of the *Scapula*, from whence by some *Anatomists* its thought to receive its chiefest part of its *Fibres*, and by a short and strong, but broad Tendon, is implanted beneath the upper Head of the *Os Humeri*, between the *Pectoralis*, and *Rotundus*, it bringing the *Arm* down backwards, and sometimes somewhat upwards, or downwards, as its variety of *Fibres* are employed and contracted.

*This brings
the Arm down
backwards.*

Great Care must be had in raising this *Muscle* from his Origination, least with it, you do also raise the Origination of its subjacent *Muscle Serratus Major Posticus*, if you be not very careful in your Dissection; you will also borrow from *Quadratus Lumborum*, as you raise him from the *Ileon*, to which it firmly affixeth its self, as also near the *Scapula*; if Care be not used, you will certainly find some part of him come up with him.

*This you have at Tab. XIV. and Tab. XIX. it is laid bare,
as also at Tab. I.*

Serratus Posticus Superior.

THIS hath the Name of *Serratus* from its Saw-like Indentations, and *Posticus*, it being as an *Antagonist* to those planted in the foreparts, as also *Superior* or *Inferior*, from their Situations; this is a small *Muscle*, and immediately lodgeth under the *Rhomboides*, as I have already said: It ariseth with a thin Tendon between each *Scapula*, and is inserted over the first pair of the *Muscles* of the Head, arising Membranous from the *Spines* of the three lower *Vertebres* of the Neck, and the first of the *Thorax*, and marching under the *Scapula*, is inserted in the Interspaces of three or four of

*This doth
dilate the Tho-
rax.*

the upper *Ribs*, by the Elevation of which, it dilates the *Thorax*.

This you have at Tab. XVI. both in and out of its place.

Serratus Posticus Inferior.

*This dilates
the lower part
of the Trunk.*

THIS *Muscle* is broad, thin, and Membranous, planted almost in the middle of the *Back*, under the *Latissimus Dorsi*, it arising from the *Spine* of the lower *Vertebres* of the *Back*, and the first of the *Loins*, and marching Transversely, becomes fleshy, and is inserted into three or four of the *Bar*stard *Ribs*, by so many distinct Terminations; and by drawing them outwards, do at the same time dilate the lower part of the *Trunk*.

This you have at Tab. XVI. both in and out of its place.

Splenius, or Triangularis.

*This brings
the Head back-
wards.*

IT takes its Name partly from the Figure it hath with a *Spleen*, it arising partly Nervous and partly fleshy from the *Spines* of the fifth, fourth, third, second, and first *Vertebres* of the *Thorax*, then from the *Spines* of the lower *Vertebres* of the *Neck*, and then running broad and long about the 3d. *Vertebre* of the *Neck*, both its Originations do there unite, and with its *Oblique Fibres*, both of them do insert themselves into the middle of the *Occiput*; you must take it off from its Originations, and preserve as many of its *Ansulæ* as you can between the *Spines*, by running between them, and recovering its *Tendon*.

If both move, they do bring the *Head* directly backwards; if one only move, it turns the *Head* sideways.

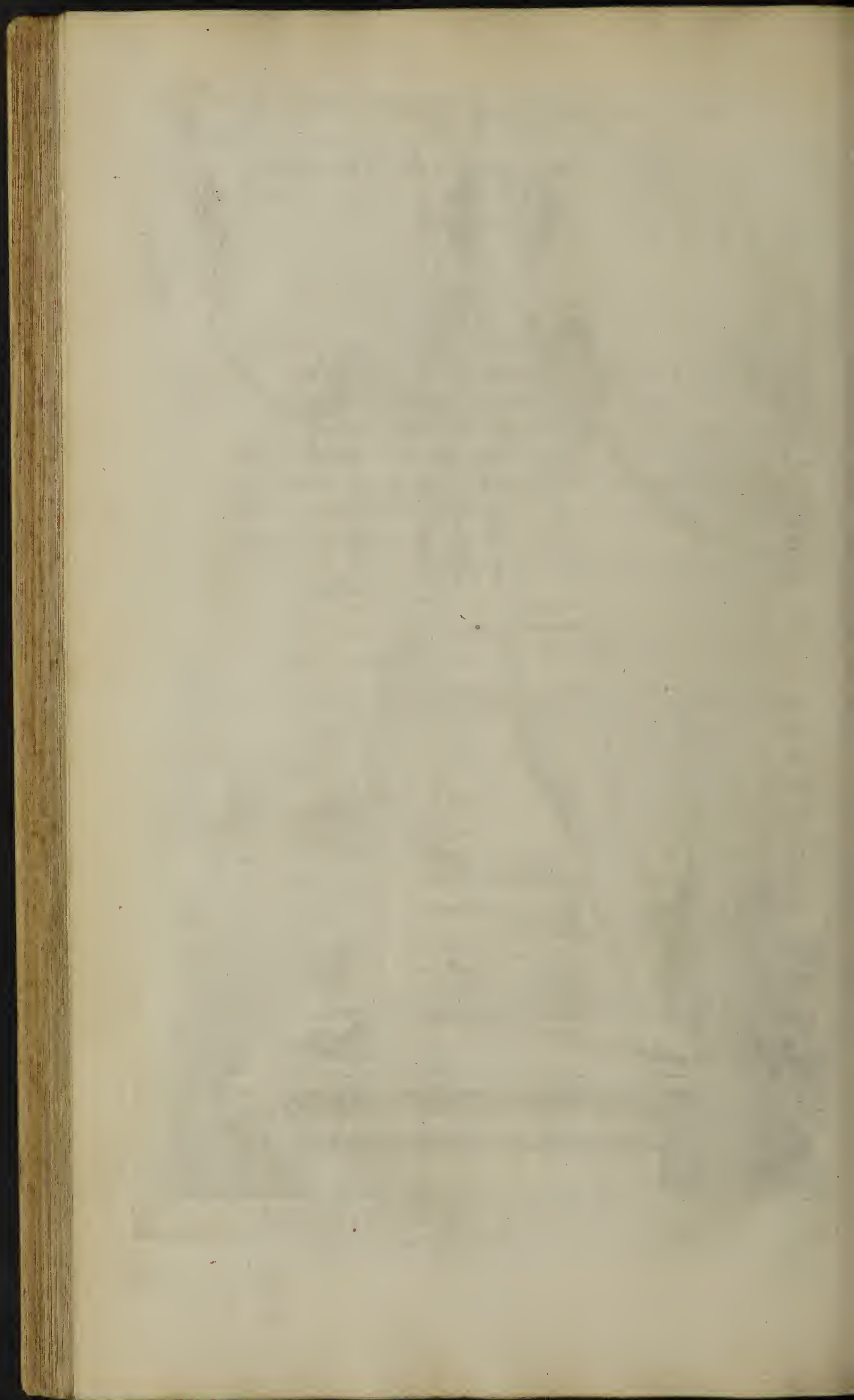
This you have at Tab. XV. Fig. I. and at Tab. XVI, XVII.

Complexus, or Trigemini.

*This extends
the Neck.*

THIS *Muscle* hath a threefold Origination; First, from the fourth and fifth *Processes* of the *Vertebres* of the *Thorax*, then becoming fleshy, doth ascend over the rest of these *Vertebres*, until he





he reacheth the lower part of the Neck, where it becomes a round Tendon; not far from thence again, it appears fleshy, and doth insert its self into the upper part of the *Occiput* laterally. Its second Origination is with a short Tendon from the same Process of the last *Vertebre* of the Neck, then becoming fleshy, is joyned to the other before its Insertion. Its third Origine is partly fleshy, and partly Nervous, from the *Transverse Processes* of the first and second *Vertebres* of the *Thorax*, and running Obliquely outwards, after having united with the former, is inserted into the Root of the *Mammillary Process*, bestowing an *Ansula* on every Process.

To find this fairly, divide the Sides of *Spinatus*, and *Longissimus Dorsi*, and his Origination will plainly appear.

Riolan observes, that the *Fibres* both of this *Muscle* and *Splenius*, being variously interwoven, to decussate each other in acute *Angles*, which adds Strength to them in their Contractions.

This you have at Tab. XV. in its place, and laid bare, as also at Tab. XVI. and Tab. XVII. you have the same likewise.

Recti Majores.

THESE being small, thin, fleshy, and short, do arise out of the Spine of the second *Vertebre*, and growing broader and more fleshy in their Ascent, are so inserted into the middle and back part of the *Occiput*, helping forwards the Motion of the third pair.

These bring the Head back.

This you have at Tab. XVI. Fig. I, II.

Recti Minores.

THESE pair lying under the former, are likewise two small *Muscles*, being much of the same Substance and Shape, accompanied with the like *Ductus*, they arising fleshy from a small protuberance of the first *Vertebres* of the Neck, and ascending, are implanted like the former, just underneath them, assisting them in their Motions.

These do assist the former.

If they both Act, they bring the *Head* directly backwards; if only one Act, it brings it laterally.

This you have at Tab. XVI. Fig. I, II.

Obliqui Superiores.

*These do
turn the Head
backwards.*

THE first use of the *Dentiform Process*, is to be a *Centre* of Motion, on which the first *Vertebre*, being pliant freely playeth backward and forward, as *Dr. Collins* writes, whence he proposeth, that the first may be called *Epistrophis*, tho' diverse *Anatomists* have assigned this to the second *Vertebre*, which may rather be termed an *Axis*, in reference to its *Process*; about which, it being immoveable, the first *Vertebre* doth variously sport its self in *Oblique Motions*, performed by these and the other lower *Oblique Muscles*: These are planted under the *Recti*, answering both their Form, Shape and Substance; being small, arising fleshy from the hinder part of the *Transverse Process* of the upper *Vertebre* of the Neck, and being carried along in an *Oblique Course*, are inserted into the sides of the *Occiput*, near the outside of the *Recti*: *Bauhine* will have them to arise in the *Occiput*, and that they do end in the *Apices* of the lateral *Processes* of the first *Vertebres* of the Neck; and the Heads of these *Muscles* being fixed to the second *Vertebre*, as being immoveable: The *Right Oblique Superiour* and *Inferiour Muscles* being planted in an *Oblique Situation*, and ending in the right side of the *Occiput*, when contracted, must necessarily bring the *Face* towards the right Shoulder, and in a contrary Manner, the left being planted as their *Antagonists*, ending in the same Manner in that side, must also bring it to the left Shoulder.

These you have at Tab. XVI. Fig. I, II.

Obliqui Inferiores.

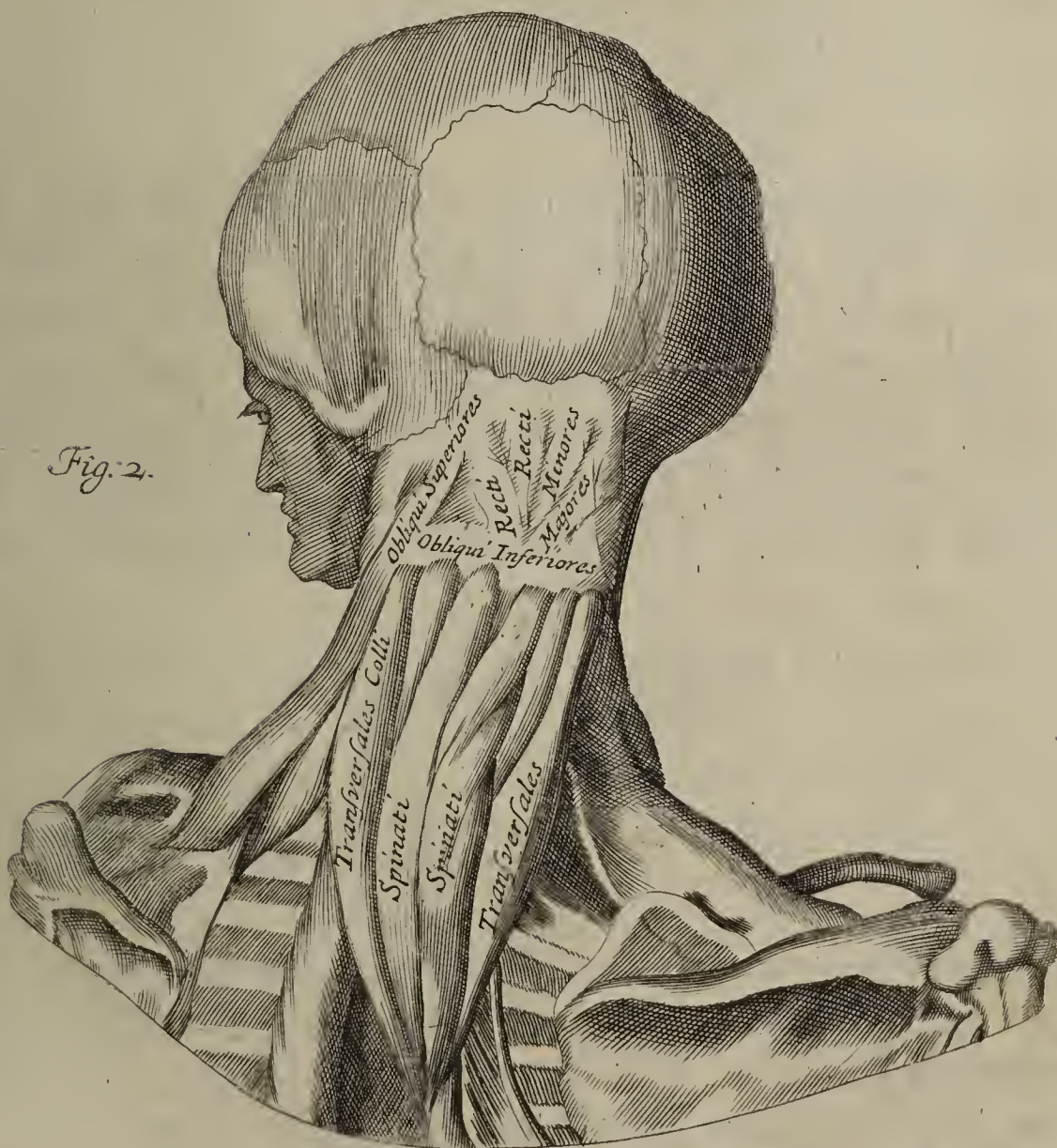
*These do
assist the former.*

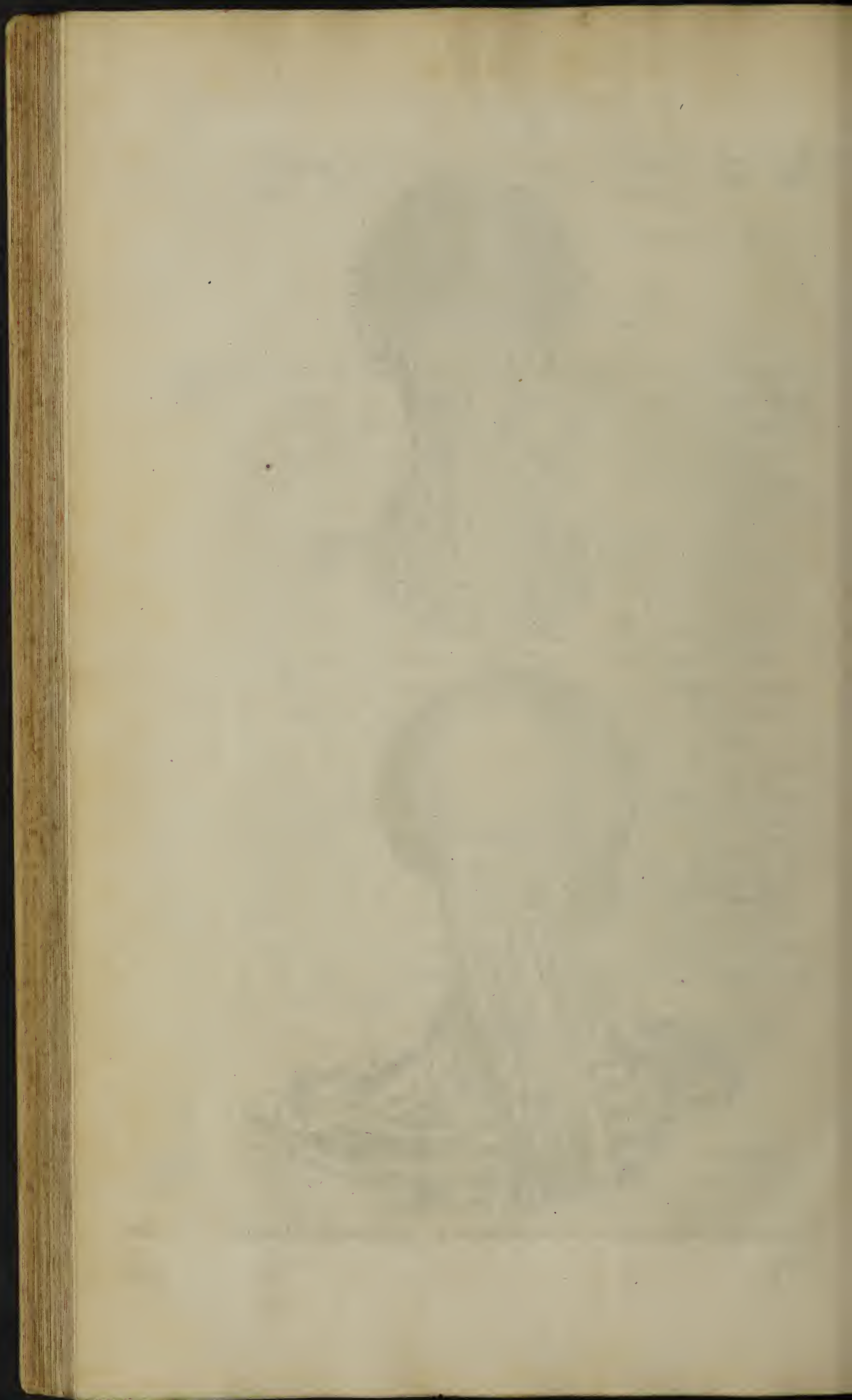
THESE do arise fleshy, thin and long, from the *Spinal Process* of the second *Vertebre* of the Neck, near the beginning of the *Recti*, and growing more fleshy, and *Obliquely Ascending*, are inserted with the *Obliqui Superiores*,
into

Fig. 1.



Fig. 2.





into the *Transverse Process* of the first *Vertebre* of the Neck where the former *Muscles* had their Originations.

This is shewn at Tab. XVI. Fig. I, II.

Transversalis Colli.

THIS ariseth fleshy from all the Roots of all the *Transverse Processes* of the upper *Vertebres* of the Neck, and growing more fleshy, are thereto annexed at their outside, it takes its Name from its *Transverse* Origination, and is allowed to bring the Neck *Obliquely* backwards, one only acting; between these are carried the *Nerves* of the *Spinal Marrow*, which do arise out of the *Vertebres* of the Neck. *This extends the Neck.*

This you have at Tab. XVI. Fig. II.

Spinalis Colli.

THIS hath its Name from its place, it bordering upon the *Spines* of the Neck, and ariseth from the seven *Spines* of the *Vertebres* of the *Thorax*; and the five *Spines* of the *Vertebres* of the Neck, bringing them together, and not distinguishable but by the said *Spines*; and becoming fleshy in its Descent, is implanted into the lower part of the second *Vertebre* of the Neck, and is said to bring the Neck directly backwards. *This extends as the former*

This you have at Tab. XVI. Fig. II.

Sacrolumbalis.

THIS lodging under *Serratus Posticus Inferior*, having the same Origination with *Latissimus Dorsi*, and joyning to him sideways outwardly all its Length even till it hath Arrived at the 12th. *Vertebre* of the *Thorax*, where they seem to be two, altho' scarce divisible by the Knife, and then growing thinner doth insert it Self by two small Tendons, into every *Rib* of the *Thorax* at their incurvations. *This assists the former in its extensions.*

P

There

There is a great Dispute among *Anatomists* about these Tendons, some alledging that this *Muscle* doth send forth a double Tendon, one upwards to the lower part of the *Ribs*, and the other downwards to the upper part thereof; and these said to raise the *Ribs* upwards in Inspiration, and to bring them down in Expiration; which contrary Motions were never allowed to be performed by any one *Muscle*: And it may well enough be supposed, that these Tendons thus descending, do arise from some other peculiar *Muscle*, which upon a diligent Enquiry, *Diemerbroeck* tells us, he found to come from the *Muscle* just laying under this, and to which it is so closely affixed, that it is scarce divisable from it; which *Muscle* he calls by the Name of *Cervicalis Descendens*, whose Tendons being variously planted contrary to those of this *Muscle*, do operate as variously in their Contractions: For that we see, as the Tendons of the *Cervicalis Descendens* do draw the *Ribs* upwards in Inspiration; so the Tendons of *Sacrolumbalis* do draw the *Ribs* downwards in Expiration; for their more easy and better Contraction.

This you have at Tab. XV. both in and out of its place.

Sacer.

This extends the Loins.

THIS hath its Name from its place, it arising sharp and fleshy from the upper part of the *Os Sacrum*, and from all the *Transverse Processes* of the *Loins*, and is joyned to their upper *Spines*, and hath three several Tendinous Insertions; the first, in the upper part of the *Transverse Processes* of the *Vertebres* of the *Loins*; the second, in the Root of the same Processes; and the third, in the *Spines* of the same *Vertebres*.

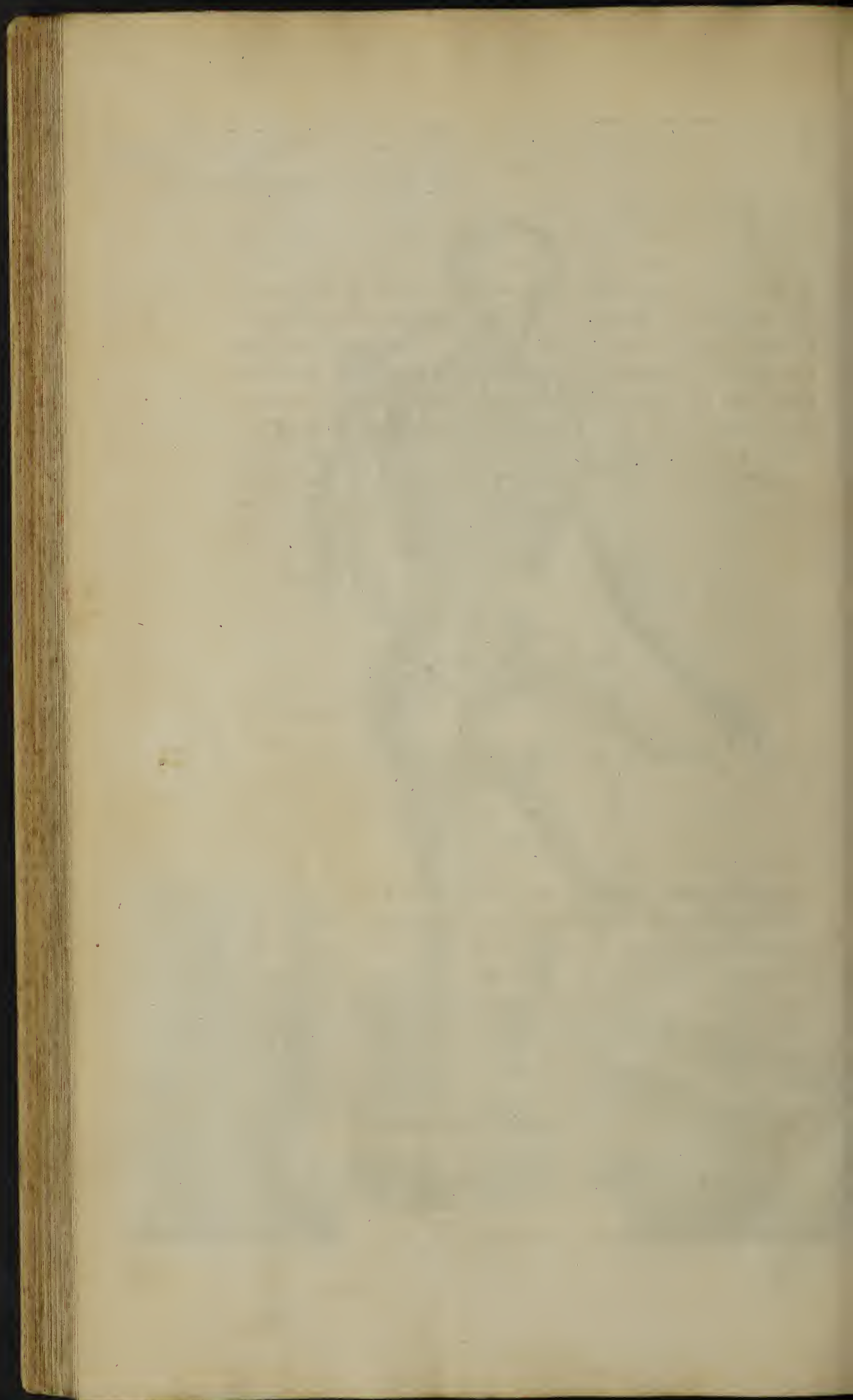
To find this out, you must raise *Latissimus Dorsi*, and *Sacrolumbalis*, from their Membranous Originations, at the *Os Ileon*, *Os Sacrum*, and from the *Lumbal Spines*; and immediately under these, this will appear *in Situ*, it being allowed to assist *Latissimus Dorsi* in its Operations.

This you have at Tab. XV. and XVI.

Semis

TAB. XVII.
Finis Prælectionis quartæ





Semispinatus.

THIS ariseth with a Tendinous Origination, according to Diemerbroeck, tho' by some, its Origination is said to be fleshy, from all the *Spines* of the *Os Sacrum*, and the *Loins*; and becoming fleshy, doth bestow a Nervous Tendon upon every *Spine* of the upper *Vertebres*, and marching Obliquely upwards, is inserted into the upper *Spines* of the first *Vertebres* of the *Thorax*, extending it. *This extends the Trunk.*

These with the former acting together, are allowed to bring the whole *Spine* Obliquely backward, or to either side; they are also said to assist in raising the *Trunk* of the *Body*.

This you have at Tab. XVII.

Longissimus Dorsi.

THIS hath its Name from its length, it being one of the longest *Muscles* belonging to the *Body*; and a *Muscle* both of great Use, and Service to the *Trunk* in allowing it a direct Motion; as also of no small Use in Progressive Motion, and therefore I have more properly placed this next to *Semispinatus*, and just before *Quadratus Lumborum*. This arising from all the *Spines* of the *Os Sacrum*, and all the *Lumbal Vertebres*, as also from the inner part of the *Os Ileon* where it annexeth its self to the *Sacrum*. Its outward Origination being very strong, nervous, and somewhat acute, but inwardly fleshy; it adjoyning its self in its Ascent to the *Transverse Processes* of the *Loins*, and then becoming more fleshy in its March, is seen to narrow himself; it bestowing a small Nervous Tendon on every *Transverse Process* of the *Thorax*, except the twelfth *Rib*, and doth insert its self in the *Process* of the first *Vertebre* of the *Thorax*, although sometimes it hath been seen to reach even to the *Mammillary Process*. *This extends the Trunk.*

Obs. Upon this, the whole *Sacro-lumbalis* is said to rest its self, it obtaining the same Origination with it, and is continued so from the end of the *Os Sacrum* even to the twelfth *Vertebre* of the *Thorax*, and in its whole Progress to the *Loins*:

This you have at Tab. XV. and at Tab. XVII.

Quadratus Lumborum.

This extends the Loins.

THIS hath its Name from its Figure, it carrying in it a Resemblance of a *Quadrangle* or *Square*: It ariseth short, thick and fleshy from the back part of the *Spine* of the *Os Ileum*; as also from the upper part of the *Os Sacrum*, and is inserted inwards to all the *Transverse Processes* of the *Loins*; just beneath the *Psoas*.

This is shewn at Tab. XVII. and at Tab. XXVII. in its place.



Lecture V.

To which these following *MUSCLES* do properly belong, *viç.*

<i>Deltoides,</i>	<i>Perforatus,</i>
<i>Pectoralis,</i>	<i>Perforans,</i>
<i>Biceps,</i>	<i>Extensor Digitorum Communis,</i>
<i>Supraspinalis,</i>	<i>Indicis Extensor,</i>
<i>Infraspinalis,</i>	<i>Lumbricales,</i>
<i>Teres Minor,</i>	<i>Flexor tertii Internodii Pollicis,</i>
<i>Teres Major,</i>	<i>Flexor primi Internodii Pollicis,</i>
<i>Nonus Humeri Placentini,</i>	<i>Pollicis Adductor,</i>
<i>Subscapularis,</i>	<i>Pollicis Abductor,</i>
<i>Brachialis Externus,</i>	<i>Extensor primi Internodii Pollicis,</i>
<i>Brachialis Internus,</i>	<i>Extensor secundi & tertii In-</i>
<i>Anconæus,</i>	<i>ternodii Pollicis.</i>
<i>Gemellus,</i>	<i>Interossei Manus,</i>
<i>Palmaris,</i>	<i>Auricularis,</i>
<i>Caro Musculosa Quadrata,</i>	<i>Minimi Digiti Abductor,</i>
<i>Flexor Carpi Exterior,</i>	<i>Pronator Quadratus,</i>
<i>Flexor Carpi Interior,</i>	<i>Pronator Radii teres,</i>
<i>Extensor Carpi Exterior,</i>	<i>Pronator Radii Longus,</i>
<i>Extensor Carpi Interior,</i>	<i>Supinator Radii Brevis.</i>

Deltoides.

THE Bone inarticulated above with the *Scapula*, and below with the *Cubite*, is by *Celsus* called *Os Humeri*, or commonly the *Arm-bone*, among the *Muscles* allowed it, we begin with this, which takes its Name from the Figure it carries in it of a Greek Δ , and therefore by some it is called *Triangularis*, by others *Humeralis*, it arising with a broad and nervous Origination from the middle part of the *Clavicle*; the *Arm*, and the whole *Spine* of the *Scapula*, and is outwardly expanded with a strong fleshy Covering, and inwardly with a Nervous Membrane, almost reaching the middle of the *Arm*, and is allowed to bring the same ei-
 Q ther

*This lifts
up the Arm.*

ther upwards, forwards, or backwards, according to the various workings of its *Fibres*.

Many unskilful Persons do usually make *Fontanel*s, or *Issues* in the midst of this *Muscle*, tho' very disagreeable to Sense and Art; since upon every *Contraction* of the same, the *Orifice* contracting its self therewith, doth at the same time turn out the *Pea* from its place.

This you have shewn at Tab. XVIII. both in and out of its place.

Pectoralis.

*This brings
the Arm for-
wards.*

THIS hath its Name from its Situation, having a *Semi-circular* fleshy Origination, upon the forepart of the *Breſt*, then arising with a Membranous Beginning from the middle Cavity of the whole *Sternum*, as also from the *Cartilages* of the 6th. 7th. and 8th. *Ribs*, (formed as it were out of many *Muscles*) and narrowing its self towards its end is implanted by a short and strong *Tendon*, to the upper part of the *Os Humeri* somewhat under its Head; this bringing the *Arm* to the *Breſt*, or forwards, sometimes directly, or *Obliquely* downwards, according to the various *Actings* of its *Fibres*: By some it is called the *Boxing Muscle*, or *Adducens Humerum*.

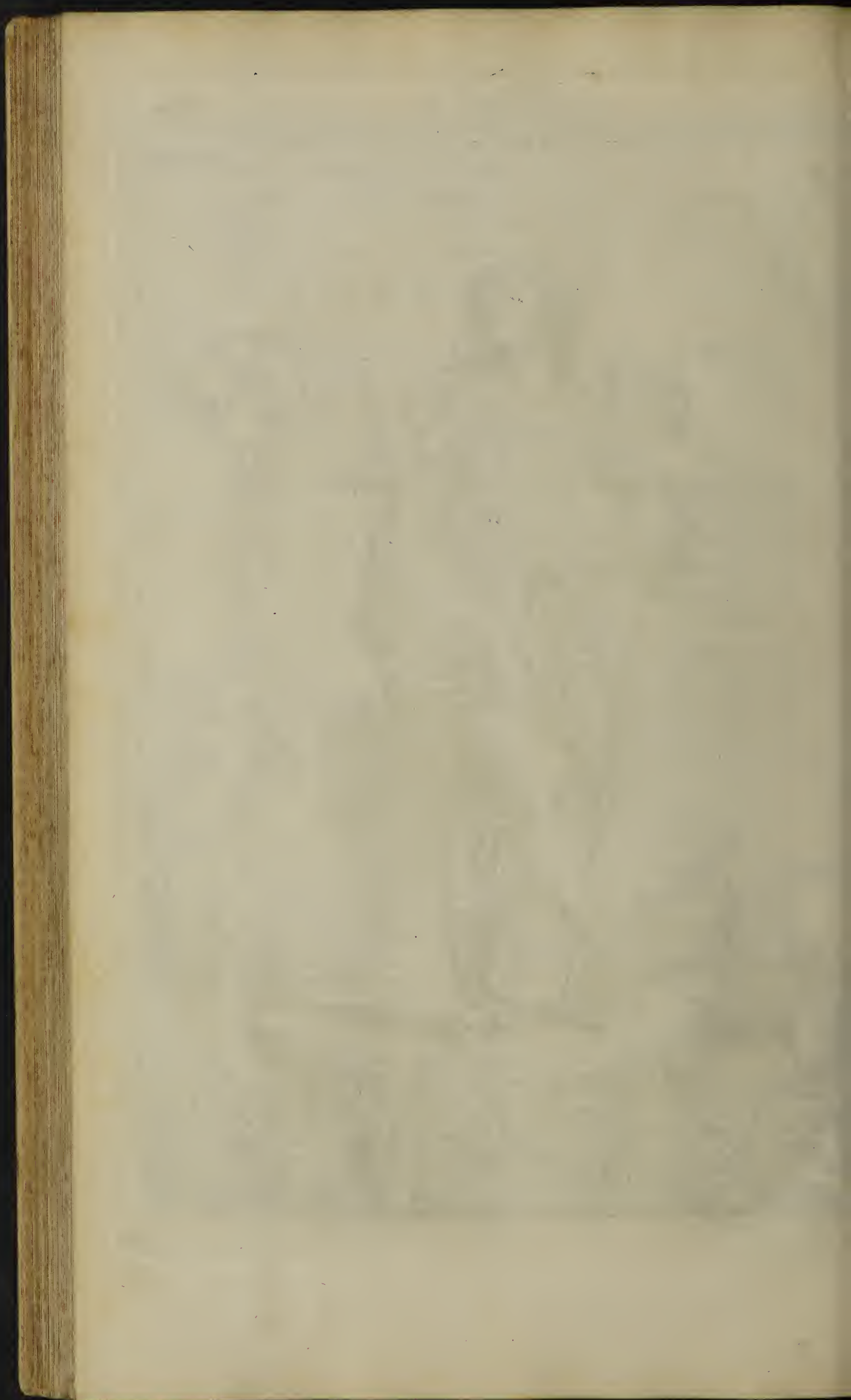
This you have at Tab. I. and at Tab. XII.

Biceps.

*This bends
the Arm.*

IT hath its Name from its Double-head or Origination, it first arising from the top of the *Acetabulum Scapulae* outwards, by one Substance; and so running under the *Ligament* of this *Juncture* over the *Head* of the *Os Humeri*, and through a *Channell* insculpt for him, it is there bound in by a proper *Ligament*; next it ariseth broad fleshy and *Nervous*, from the *Coracoidall Process* of the *Scapula*, and is carried over to the inner *Head* of the *Os Humeri*, and in his descent meets with the former, and do there make one Strong and fleshy *Muscle*; then narrowing himself, is converted into a strong, thick, large and *Nervous Tendon*, and is inserted by an





an Oblong and round Tendon, to the Protuberance at the upper *Head* of the *Radius*, where some have declared to have found it double.

It is the Tendon of this *Muscle* which lodgeth under the middle *Vein* of the *Arm*, whose exterior *Tendinous Fibres*, are to be kept free from being cut in *Venæsection*; which being once cut or divided by ignorant *Blood-Letters*, do usually produce those ill Symptoms that very frequently happens from this their ignorance.

This you have at Tab. XVII. and at Tab. XX. Fig. I.

Supraspinalis, or Suprascapularis.

THIS hath its Name from its Situation, it being planted above the *Spine* of the *Shoulderblade*, it arising fleshy and long from the *Basis* of the *Scapula* above its *Spine*, filling the whole space, between the *Spine* and the upper part of the *Scapula*, and marching back towards its *Neck*, gets under the Second Ligament of the *Humerus*, as doth the *Biceps*, and is obliquely inserted by a strong round and broad Tendon into the *Neck* of the *Os Humeri*, assisting the former in bringing the *Arm* about, whilst others as Strenuously declare that it lifts up the *Arm* with the *Deltois*.

This brings it about upwards.

This you have at Tab. XIX.

Infraspinatus or Infrascapularis.

THIS hath its Name also from its Situation being planted below the *Spine*, that is, covering that whole outward part of the *Scapula*, which is under the *Spine*, it arising fleshy from the lower *Basis* of the *Scapula*, and taking the greater part of its Cavity with it, runs backwards, narrowing its self, according to the form of the part, as it passeth over the *Juncture* in a *Semicircular* Manner, and then becomes *Tendinous*, and is inserted to the *Head* of the *Os Humeri*.

This brings it about directly backwards.

I humbly conceive that this *Muscle* according to its Situation,

tuation, cannot but assist the *Deltois*, and *Coracobrachialis*, in lifting the *Arm* upwards.

This you have at Tab. XIX.

Teres Minor.

This brings
the Arm up-
wards.

THIS hath its Name from its figure and make, and by *Fallopius* is held to be the 8th. Muscle of the *Scapula*, and from its Situation he calls it *Transversalis*; and *Brevis*, and *Rotundus*, from its Origination and Shape, it arising sharp and fleshy from the lower Angle of the *Scapula* at its *Basis*, and then growing more fleshy towards its *Venter*, does again lessen its self, in its oblique descent, where becoming *Tendinous*, is inserted into the Neck of the *Os Humeri*, helping forward the Motion of the 4th. Muscle; some *Anatomists* supposing it to be only as a part thereof. This by *Spirigalius* is called *Octavus Humeri Placentini*.

If I mistake not, Mr. *Cowper* has here committed no small Error in directing the *Nonus Humeri Placentini* to *Rotundus Minor* in the Index, and then *Rotundus* to *Teres Minor*, which he tells in Page 138. Cap. 25. that it is reckoned the eight Muscle, and therefore by some is called *Octavus Humeri Placentini*, but this I suppose was thus penn'd, on purpose to Rectify other Mens mistakes, as he assures us in his Preface.

This you have at Tab. XIX.

Teres Major, or Rotundus Major.

This draws
the Arm back-
wards and
downwards.

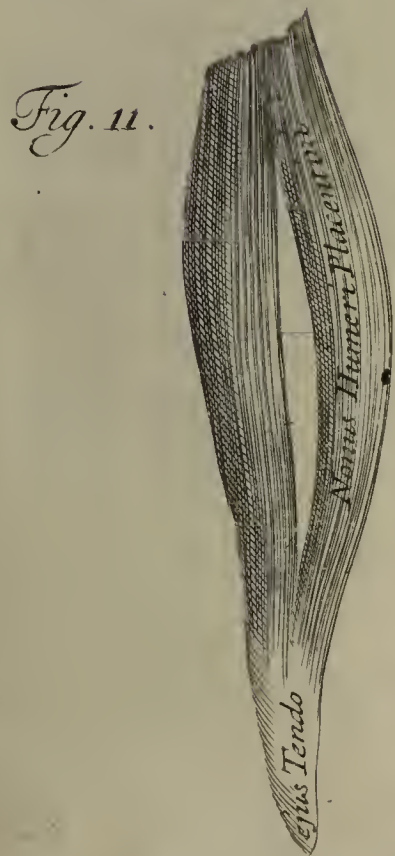
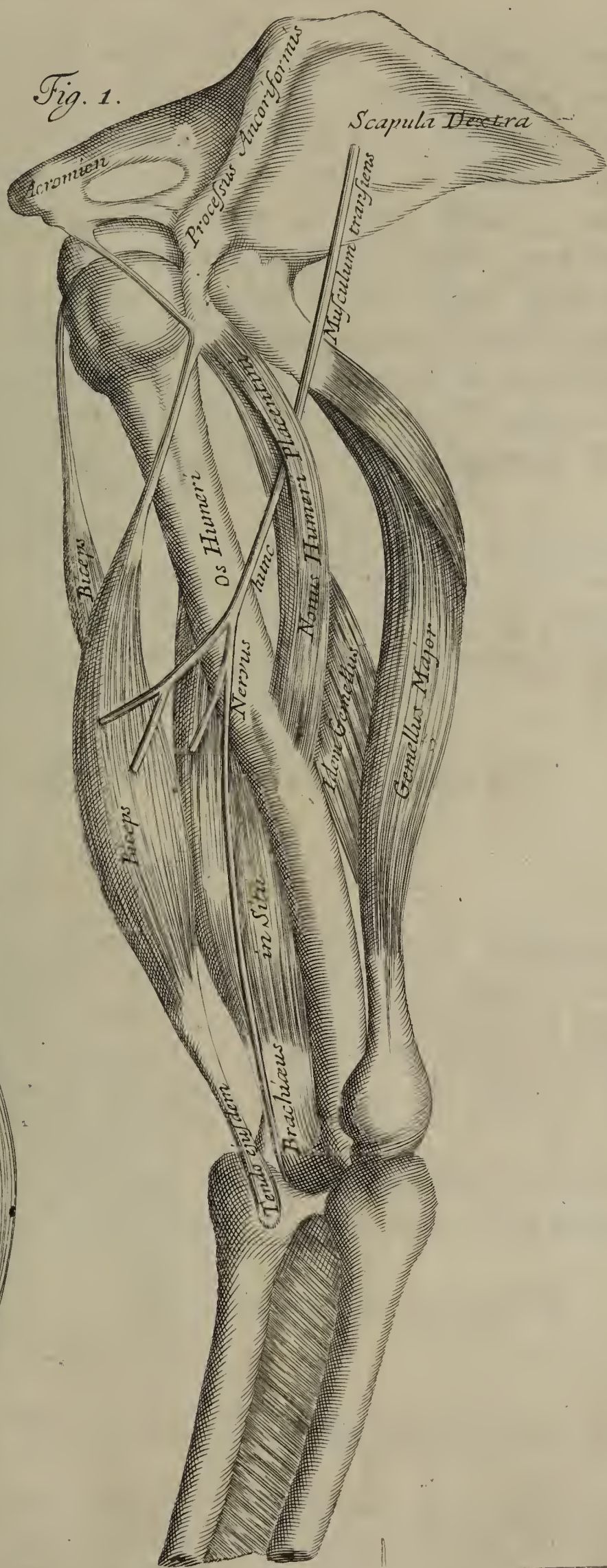
THIS ariseth fleshy from the lower Angle of the *Scapula*, and then growing round, doth ascend obliquely with the former, ending with a short, flat, and strong *Tendon*, a little below the Neck of the *Os Humeri*, it bringing the *Arm* somewhat backwards and downwards.

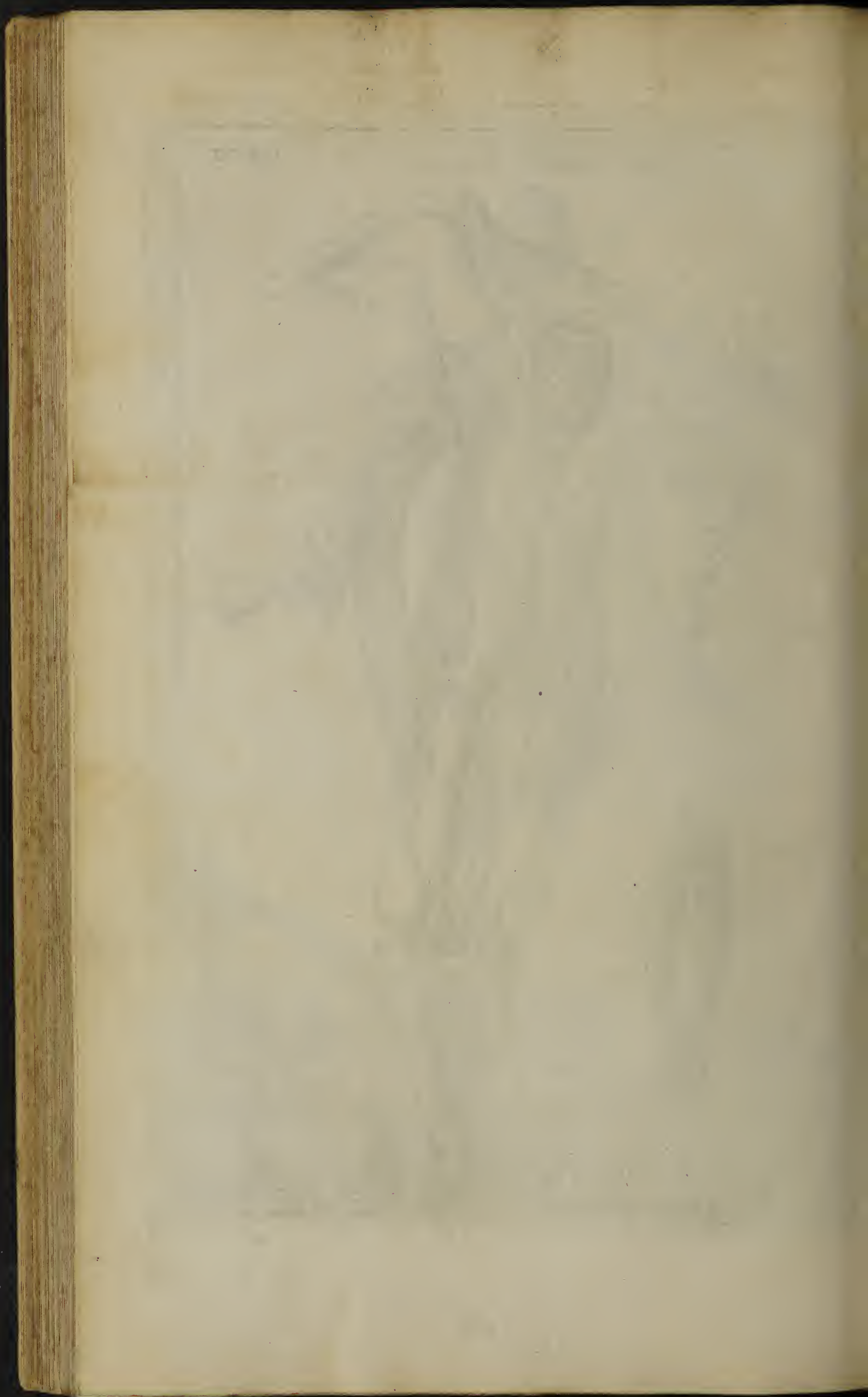
Here is another of *Medicasters* complaints against me, in that I write the former to be an *Elevator*, when as it is so generally allowed a *Depressor*: But I take my Authority for this assertion from the late Dr. *Crowns* syllabus, who was a sufficient Original for me to Copie after.

This you have at Tab. XIX.

Nonus







Nonus Humeri Placentini.

BY some this is also called *Perforatus*, its Venter being perforated, through which passeth a large Nerve; and *Coracoides*, and *Coracobrachialis*, it arising from the *Coracoidal Process* of the *Scapula*, it being partly fleshy and partly *Tendinous* at its said Origination from the same *Process*; and marching forwards; in its Descent it grows larger, and inserts its self with a strong Tendon at the inner part of the *Os Humeri*; about its middle, bringing the *Pectoralis* with it forwards to the Breast; and being perforated in its Venter, a large Nerve is seen to pass through it, which brancheth its self into several Muscles of the Cubite. *Riolan* supposeth this to be only a Part of the *Biceps*.

*This assists
the former in
its motion.*

And whereas, *Medicaster* tells us, I write, it is inserted into the Neck of the *Os Humeri*, there's no body but himself will find it in my first English Book; For there I write it is implanted into the middle of the *Os Humeri*, as the Figure its self doth evidently discover.

This you have at Tab. XX. Fig. I, II.

Subscapularis.

THIS hath its Name from its Place and Origination where it is planted, it being a large fleshy Muscle filling the inner hollow part of the *Scapula*, and arising fleshy from its *Basis* inwards, and lessening its self in its March along the Bone, doth insert its self in a Semicircular Manner to the Neck of the *Os Humeri*.

*This brings
the Arm out-
wards.*

These Muscles of the Arm acting or working together, do bring the Arm about; this by all Anatomists being allowed a Depressor.

This you have at Tab. XII.

Brachialis Externus, or Gemellus Major.

THE Cubite being framed of two oblong round Bones called *Radius* and *Ulna*, the first planted near the Orbite of the lower part of the Shoulder Blade, with which the *Ulna* is

*This extends
the Cubite,*

R

ar-

articulated; the *Ulna* being thick and solid in its upper part, having two visible Processes, in the middle of which, a large *Sinus* is exsculpt, for letting in the Process of the *Scapula*, not far from the upper Joynt, where the Neck of the *Radius* is planted; it sending forth another Process near the inside of the *Cubite*, where it frames a proper place for the Insertions of the *Flexors* of the *Cubite*, and the *Radius* being thicker and broader in its lower part, does there make a fit Articulation with the *Carpus*.

This Muscle of the *Cubite* has the Name of *Gemellus*, also given it from its double beginning, it arising doubly broad and strong, first Tendinous, from the upper part of the lower *Costa* or *Rib* of the *Scapula* internally, it having a peculiar Cavity a little under its Neck, and then growing fleshy in its Descent, does joyn it self to the inside of the *Os Humeri*, where he meets with another fleshy Origination both broad and fleshy from the upper and back part of the same Bone, and there making one, is inserted to the upper and outward part of the *Olecranium*, and is allowed an *Antagonist* to *Biceps Internus*.

This you have at Tab. XX. Fig I.

Brachialis Internus.

This doth
assist the former.

THIS ariseth backwards from the inner Head of the *Os Humeri*, and becoming fleshy, doth ascend to the Middle of the same, almost inseparably mixing it self with the former, and is inserted partly fleshy, and partly Nervous to the outside of the *Olecranium*, on that part which we usually lean on; and by some, it is allowed as a *Flexor Cubiti*.

This you have at Tab. XX. Fig. I. in its Place.

Anconæus.

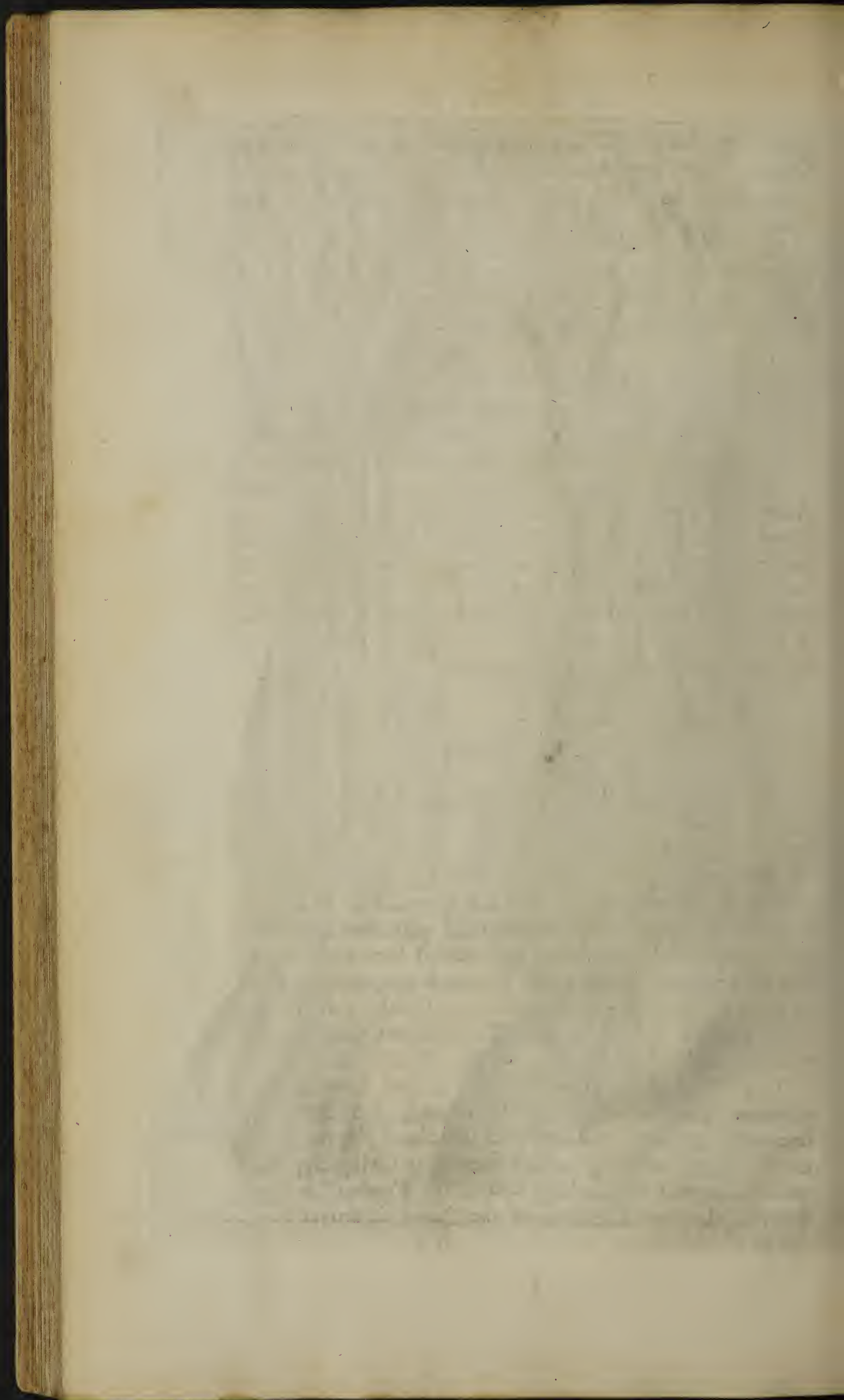
This extends
the Cubite.

THIS being a small bodied Muscle, is by some Anatomists supposed to be a part of *Brevis*, it hath its Name of *Anconæus* given it, from its Situation, as *Riolan* supposeth; it arising fleshy from the lower and back part of the *Os Humeri*, and is implanted between the *Cubite* and the *Radius*, being

Fig. 1.

Fig. 2.





being inserted with a Nervous Tendon into the side of the *Ulna*, a Thumbs length below the *Olecranium*, or Elbow, and is allowed to assist towards the extending of *Longus* and *Brevis*.

And whereas *Medicaster* tells us, I have given no *Ichon* of this *Muscle*; I shall only tell him here, as I did in my first English Book on this Subject, that it is so small, it is not to be shewn by Figure.

Gemellus.

IT takes its Name from its double Origination, it first arising Tendinous from the upper part of the lower Rib of the *Shoulder Blade* in its inside, and growing fleshy in its March, does joyn its self with its other Origination, it appearing broad and fleshy from the upper and back part of the *Os Humeri*, where it shewing its self first outwardly Tendinous, and then inwardly fleshy, is plainly seen to insert its self into the upper and outer part of the *Olecranium*, it being generally allowed an *Extensor Cubiti*. *This extends the Cubite.*

This you have at Tab. XIX. and at Tab. XX. Fig. I.

Palmaris.

THE Use of the Hand doth most clearly demonstrate in Dissection, that the Bones of the Fingers are not endowed with one Shape and Size, but rather made up of a different Sett of Bones, being for the most part round, covered with *Muscles* and *Skin*; being only found somewhat deprest in their upper and lower parts, for the better enabling them to gripe or grasp any thing within the Hand, and they are made also less and less in their Terminations that they may with the more ease close with any Object in Contraction. *This contracts the Hand.*

This *Muscle* arising somewhat round, and Nervous from the inner Extuberance of the *Os Humeri*, doth afterwards become fleshy, and narroweth its self about the middle of the *Cubite*, where being carried somewhat Obliquely, is afterwards turned into a long and round Tendon, and passing over the inner Ligament of the *Radius*, it arrives at the

R 2

Palm

Palm, where it is seen to expand its self into a very broad Tendon, and is laterally inserted into the Roots of the *Fingers*, and so closely fixed to the *Cutis*, that without Difficulty it is scarce to be divided from it.

This being contracted, doth occasion a fast Grasping of any *Tactile* Substance, and the Skin above it being moveable, doth make the *Gripe* stronger, and more fixing.

This you have at Tab. XXI. Fig. I. and at Tab. XXII. Fig. I. it is laid bare:

Caro Musculosa Quadrata, or Palmaris Brevis.

This hollows the Hand.

THIS ariseth in the lower part of the *Mons Lunæ*, as *Diemerbroeck* writes, or as *Fallopius* asserts from the 8th. Bone of the *Carpus*, and marching under the *Palmaris* to the middle of the Palm of the Hand, is inserted into the outside of the Tendon, which divides the little Finger from the rest.

This Muscle hollows the Hand in its Contraction, drawing the *Mons Lunæ* to the middle of the Hand.

This you have at Tab. XXI. Fig. I, II. and at Tab. XXII. Fig. I, II.

Flexor Carpi Exterior Radialis, or Bicornis.

This helps the former in its contraction.

THIS ariseth Tendinous from the inner Extuberance of the *Os Humeri*, and running somewhat Transversely, near the outer part of the *Primi Digitorum Flexores*, is fixed to the *Radius*, and a little before its Arrival at the *Carpus*, in its Oblique Progress, it becomes a flat Tendon, and passing over the Transverse Ligament, does there begin to enlarge its self, and is inserted into that *Os Metacarpi* which doth secure the Fore-finger: These two acting together, do contract both the Carp and the Hand, one only acting, it brings it somewhat Obliquely lateral in its Contraction.

This you have at Tab. XXI. Fig. I. II, and at Tab. XXII. Fig. I. and at Tab. XXIV. Fig. I.

Flex

fig. 1

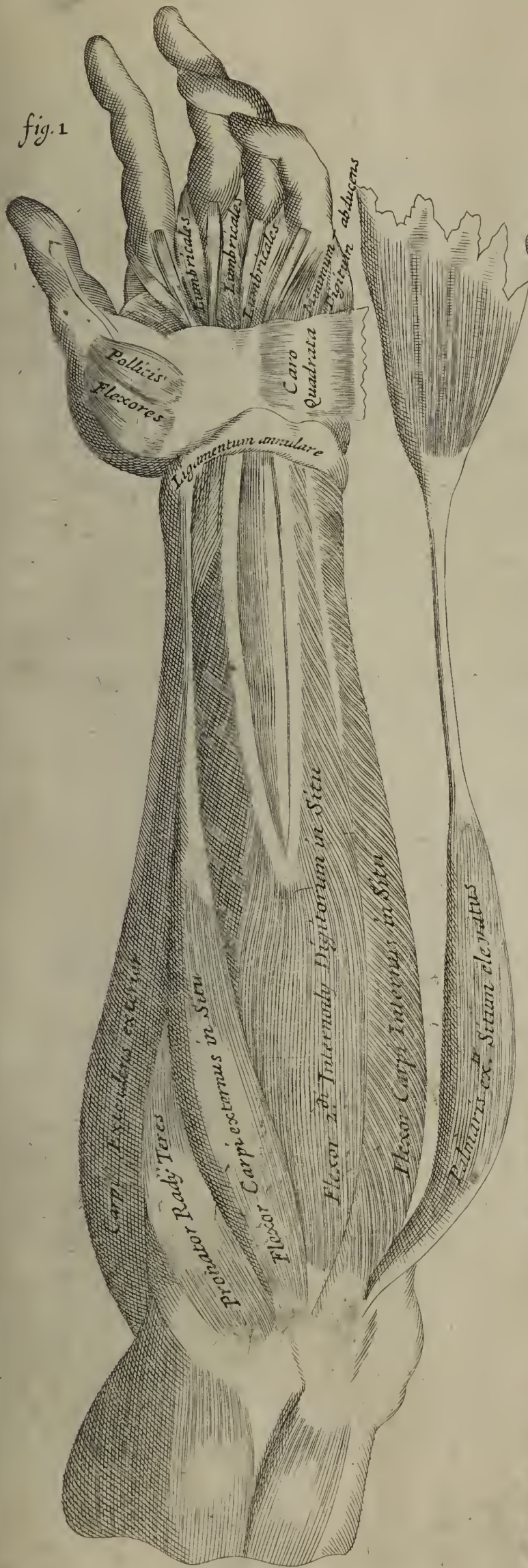
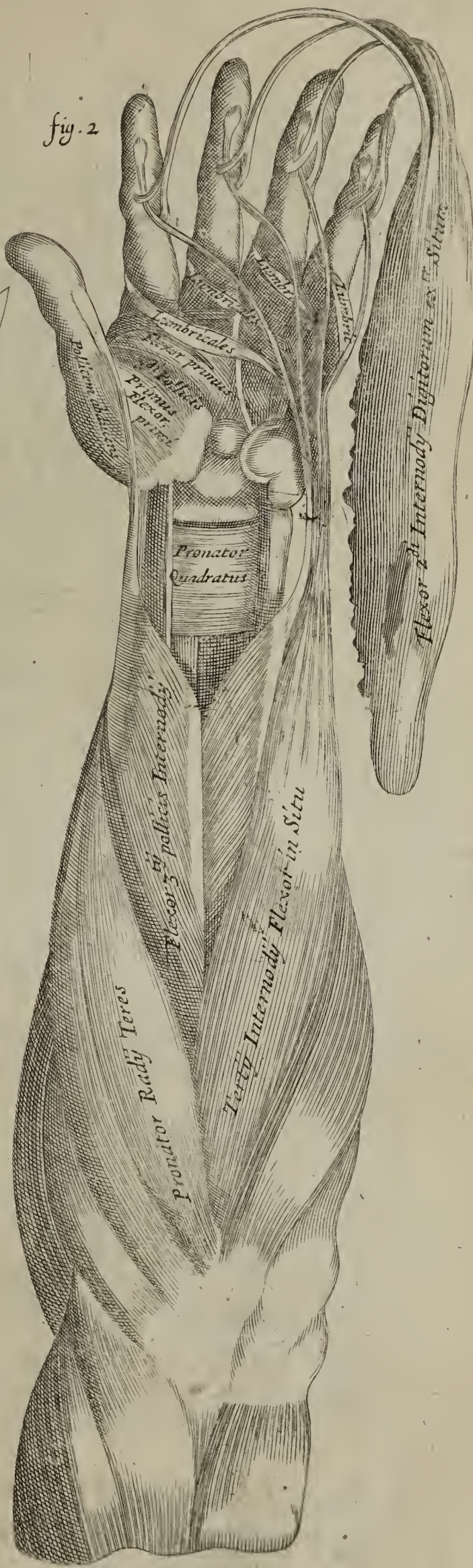
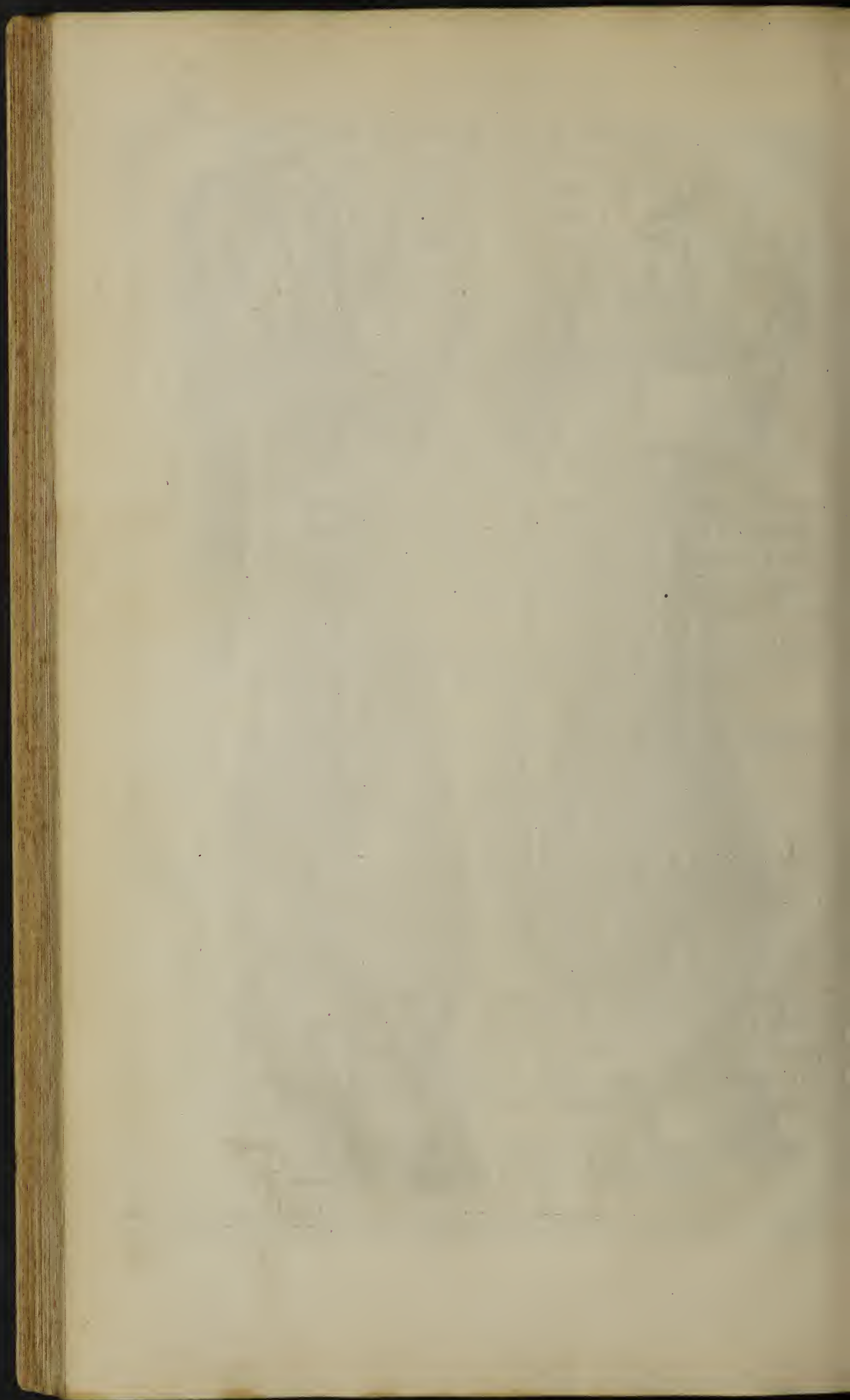


fig. 2





Flexor Carpi Interior, or Ulnaris.

THIS ariseth sharp, fleshy, and Nervous, from the inner Extuberance of the *Os Humeri*, as also from the upper and outward part of the *Ulna*, and running fleshy the length of the *Cubite*, to which it adheres, hath its Insertion by a short and strong Tendon at the fourth Bone of the *Wrist*, being partly fleshy, and partly Nervous; and doth not pass under the *Transverse Ligament*, but is only wrapt up with the common Membrane of all the *Muscles*. *This Contracts the Wrist.*

The Use of these *Flexors* is this, That as they are framed for Reception of any thing into them, they are always seen to arise from the inner part of the *Arm*, while the *Extensors* we plainly see do take their Originations from the outward Extuberance thereof.

Here is another of Mr. Cowpers Efforts of Learning, in writing the *Os Humeri* the *Shoulder-blade*.

This you have at Tab. XXI. Fig. I, II. and at Tab. XXII. Fig. I. and at Tab. XXIV. Fig. II.

Extensor Carpi Exterior Radialis, or Bicornis.

THIS hath two Originations, the outermost of which ariseth fleshy above the outer Extuberance of the *Os Humeri*, and in its declining March, it becomes a fleshy Belly, and above the middle of the *Radius* it afterwards appears Nervous. The other is partly fleshy, and partly Nervous underneath the former, and continues the same according to its length, but having arrived near half way, it is converted into a strong Tendon, and is afterwards inserted by a double Tendon into the first and second Bones of the fore and middle Fingers, and in respect of its double Origination and Insertion, it is also called *Geminus*. *This extends the Carpus.*

This you have at Tab. XXI. Fig. I. and at Tab. XXII. Fig. I. and at Tab. XXIII. Fig. I, II. and at Tab. XXIV. Fig. I, II. and at Tab. XXVI. Fig. II.

Extensor Carpi Interior, or Ulnaris.

*This extends
the Wrist.*

THIS ariseth from the inner Extuberance of the *Arm*, as also from the Top of the *Cubite*, and being dilated all its whole length through it near the *Carpus*, it is converted into a strong and round Tendon, by which he inserts himself into a *Sinus*, above the lower end of the *Cubite*, and to the fifth Bone of the *Carpus*.

Obs. Nature hath framed two Sets of Bones for making the *Carpus*, or *Wrist*, by the benefit whereof, the first is joyned to the *Radius*, and the second to the *Metacarp*, and the first Bone of the *Thumb*: The upper being so closely put together, that they all seem but as one Bone, which is taken in as it were into the *Sinus* of the *Radius*, making up an Articulation in the lower part of the *Cubite*; and the first and second Bone of the *Carpus*, being also let in as it were into a *Sinus*, hollowed at the Appendix of the *Radius*, and the third Bone thereof; all which are prudently thus managed for performing those various Offices which we daily see the *Hand* and *Fingers* exercised with, as also by the benefit of these aforesaid *Muscles*, we plainly see the *Arm* to be carried either upwards, or brought downwards, or drawn sideways, according as we please to move them.

This you have at Tab. XXIII. Fig. II. and at Tab. XXIV Fig. I, II. it is laid bare, and again at Tab. XXVI. Fig. II

*This Contracts the two
Joints of the
Fingers.*

Perforatus.

THE Bones of the *Metacarp* carrying an equal Correspondence with those of the *Fingers*, being as it were their next Neighbours, are of no small Use towards the supporting them: These also being larger in their upper parts, than in the lower; Nature thus contriving them so, on purpose for their receiving of *Muscles* in these their empty Spaces, passing between the Bones of the *Metacarp*, she framing these as so many convenient Lodgments for their Entertainment; and therefore, they are not only seen furnished with Appendages for their better Insertions, but have also given them

As

FIG. I

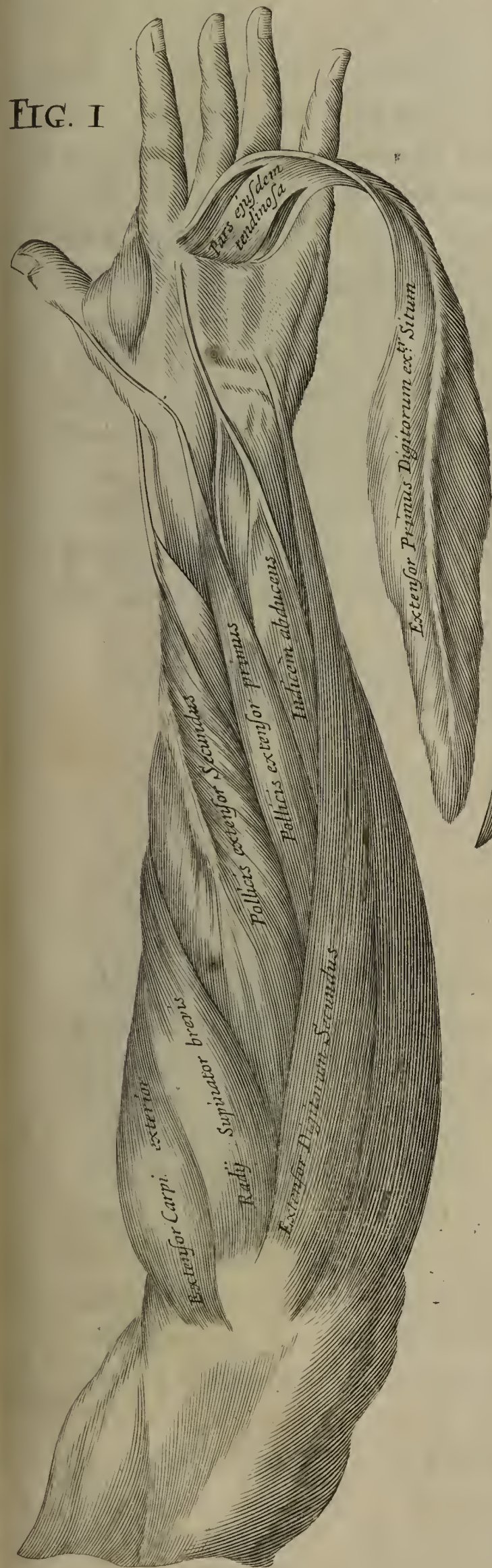
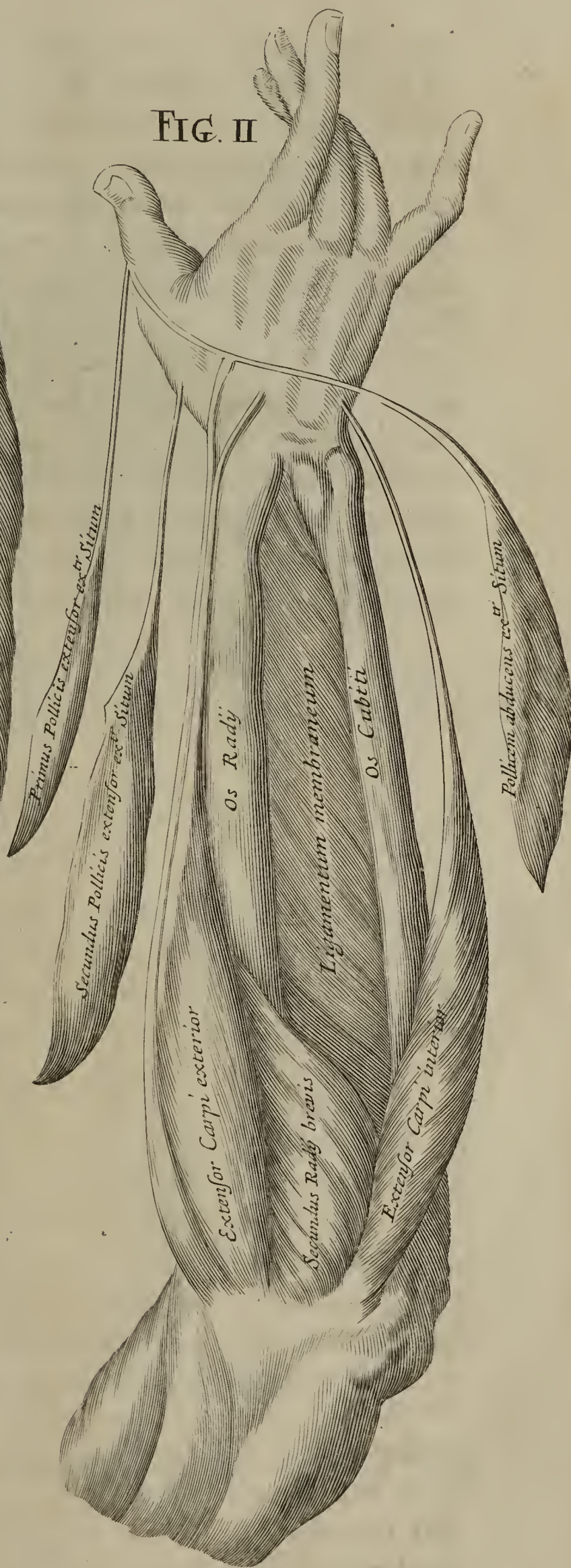
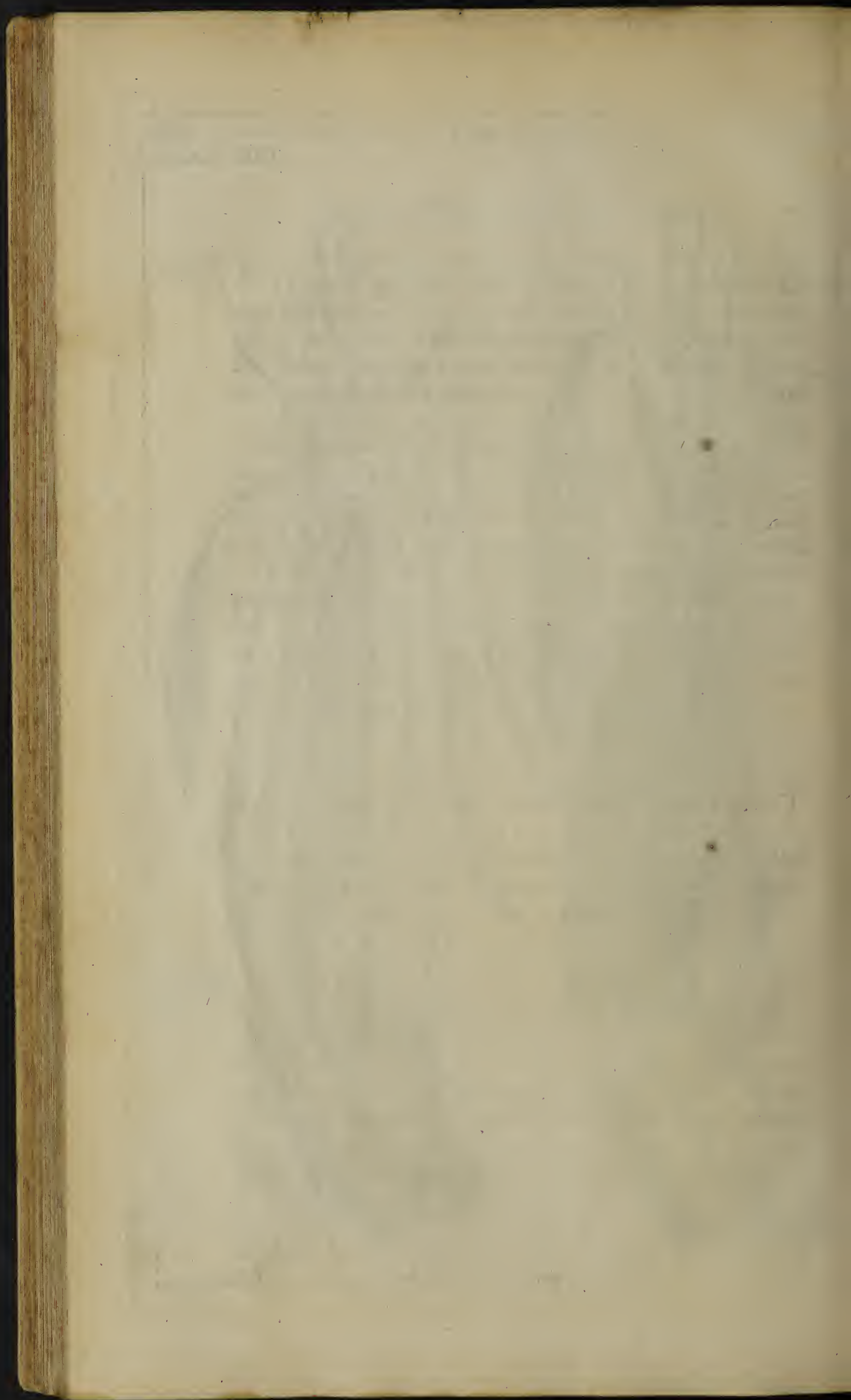


FIG. II





Asperities, for the more ready Admittance of their Tendinous Insertions.

This *Muscle* hath its Name from its perforated Tendons, and is also called *Sublimis*, from its Situation; and *Flexor secundi Internodii*, from its use: It ariseth Nervous from the inner Protuberance of the *Os Humeri*, and growing broad and fleshy about the middle between the *Cubitus* and *Radius*, somewhat adjoyning its self to them in its March, it wholly becomes fleshy and round; after this, it divides its self into four fleshy Portions, from each of which are sent out as many Tendons, every one of which being involved in a Mucaginous Coat or Membrane, and running internally under the *Transverse Ligament* of the *Carpus*, till it reacheth the *Palm*, and afterwards doth distribute these its perforated Tendons to the first and second *Internodes* of the *Fingers* a little before their Insertions, for the more ready Transmission of the Tendons of the *Perforans*, or the *Tertii Internodii Flexor*.

This you have at Tab. XXI. Fig. I. and at Tab. XXII. Fig. I. and the same layd bare at Fig. II. of the same Table;

Perforans.

THIS ariseth fleshy from the upper part of the *Cubite*, a little beneath the joynt of the *Radius*, becoming a thick bellied *Muscle*, and then outwardly growing Nervous, doth divide its self into four Tendons, which passing under the former, and then through their Clefts, is implanted into the upper and forepart of the third Bone of every *Finger*.

This Contracts the three Joynts.

Nature here hath made a very excellent Order in the framing these *Muscles*, that each of them may freely act without prejudicing each other; as also for securing them in their proper motions, she hath cut a way through the former, for these to pass freely in Order to their Operations; and not only so, but these also are so framed, as that they are seen to move without any Prejudice to the former.

This you have at Tab. XXI Fig. I, II. Tab. XXII. Fig. II.

Extensor Digitorum Communis.

*This extends
the second and
third Inter-
nodes of the
Fingers.*

THIS ariseth partly fleshy, and partly Nervous, from the outward *Apophysis* of the *Os Humeri*, and becoming more fleshy, in less than half its Progress it is seen to narrow its self, where it also is divided into three fleshy Portions, which afterwards do run themselves into as many Tendons; all which are included in a common thin Mucaginous Coat, and passing under the annular Ligament, being thus divided, they are inserted to the upper parts of the first, middle, and third Bones, of the fore, middle, and third *Fingers*.

These Tendons reaching the ends of the third Bone, and lodging under the *Nail*, sheweth us the reason of those sharp pains which usually do happen upon Fellons here growing, or upon any Prick or Cut entring these parts.

This you have at Tab. XXIII. Fig. I. laid bare.

Indicis Extensor, or Indicator.

*This extends
the Fore-Fin-
ger.*

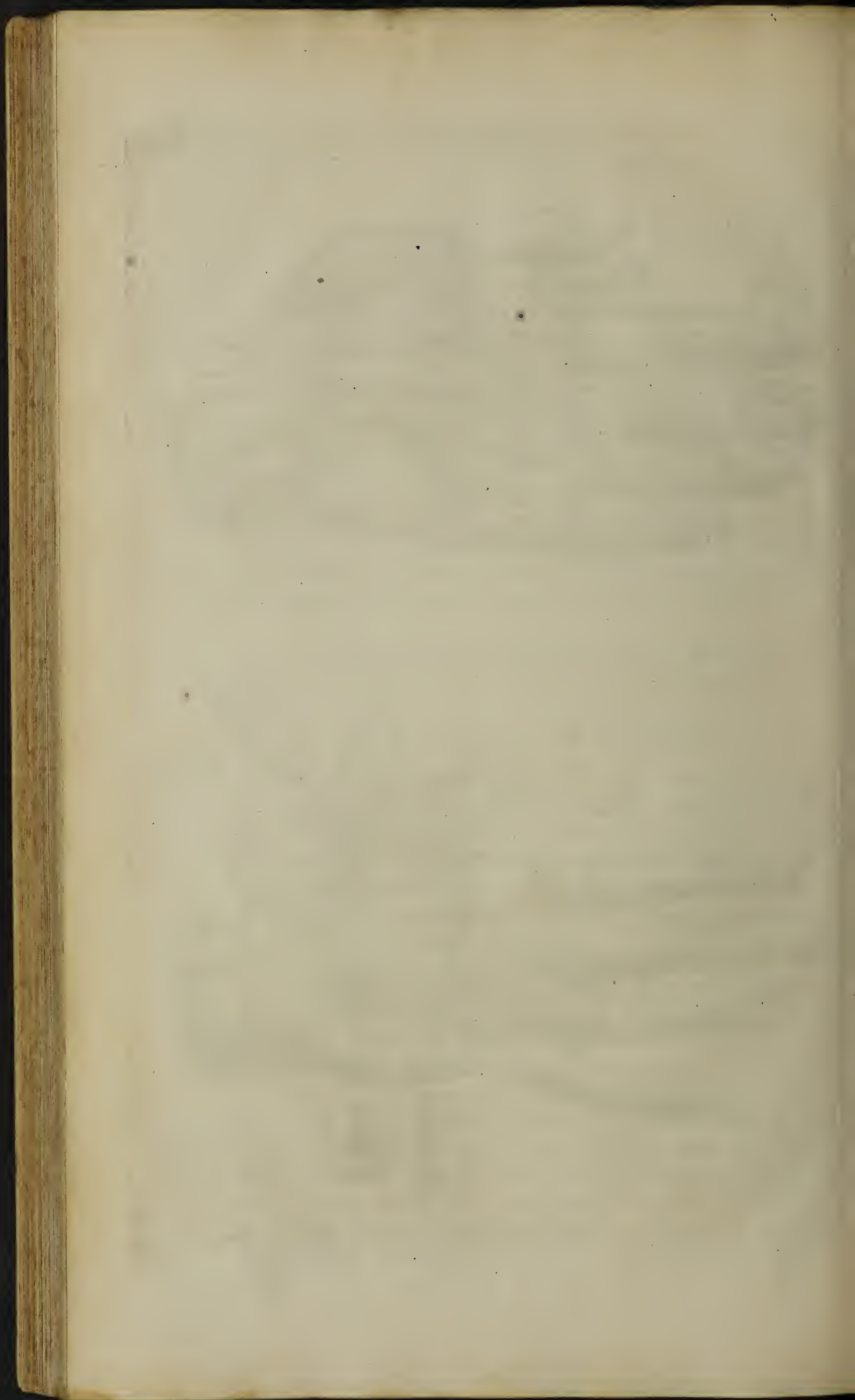
THIS proper *Extensor* of the *Fore-finger*, which both by *Riolan*, and *Veslingius* is called *Indicator*, ariseth from the outward and middle part of the *Cubite*, next the *Radius*, and Obliquely Descending, doth pass under the *Annular Liga-ment* with a double Tendon, into the second Joynt, and meeting with the Tendon of *Extensor Communis*, is carried to the third Bone of the *Fore-finger*.

This you have at Tab. XXIII Fig. I, II. and at Tab. XXIV. Fig. I.

Lumbricales.

*These do-
contract the
Fingers late-
rally.*

THEY have their Names from their Likeness with common Earth-worms, considering their Shapes; and are also called *Flexores Primi Internodii*, from their Use, they arising from the Tendons of *Perforans*, intermixing themselves therewith, and being then again segregated thence, and growing fleshy, do intermix themselves with some of the *Interossei*, run-
ning



ning out at the sides of the *Fingers*, even to the third Joynt, bending them laterally.

This you have at Tab. XXII. Fig. I. and at Tab. XXIV. Fig. I, II.

Flexor tertii Internodii Pollicis.

THIS oft times hath shewn its self with a double Ori-
gine, it first arising fleshy from the inner Extuberance
of the *Os Humeri*, partly fleshy, and partly Nervous; and
then from the upper part of the *Radius*, running forwards
to the first and second Joynt of the *Thumb*, and doth im-
plant its self at the upper part of the third Bone thereof.

*This bends
the third Joynt
of the Thumb.*

*This you have at Tab. XXI. Fig. II: Tab. XXII. Fig. II.
as also at Tab. XXIV. Fig. II. you have the same laid bare.*

Flexor primi & secundi Internodii Pollicis.

THIS ariseth fleshy from the *Ligamentum Annulare*, and
from the Bones of the *Carpus*, under the former, and is
extended to the middle of the *Thumb*, its variety of moti-
ons arising from its Diversity of *Fibres* given it, and is ge-
nerally allowed a *Flexor* of the first and second *Internodes* of
the *Thumb*, from whence it properly doth take its Name:
Riolan will not allow this a *Flexor*, but rather supposeth that
those *Muscles* which do arise from the Bones of the *Carp* or
Metacarp, ought rather to be esteemed either *Abductors* or
Adductors.

*This bends
the first and
2d. Internodes
of the Thumb.*

*This you have at Tab. XXI. Fig. I, II. and Tab. XXII.
Fig. I, II. and at Tab. XXIV. Fig. I, II. it is laid bare.*

Pollicis Abductor.

THE *Thumb* when laterally moved, is commonly said to
be either abducted, or adduced: This *Abductor* ariseth
broad and fleshy, from the inner part of the *Transverse Li-*
gament of the *Carpus*, and lessening its self in its Descent, at
its Insertion becomes *Tendinous*, marching along to the up-

*This draws
the Thumb la-
terally from
the Fingers.*

T

per

per and outer part of the second Bone of the *Thumb*, drawing it from the little *Finger*.

By some *Anatomists* this is called *Thenar*.

This you have at Tab. XXII. Fig. II. Tab. XXIII. Fig. II. it is laid bare, and at Tab. XXIV. Fig. I, II. you have the same.

Pollicis Adductor.

*This adducteth
the Thumb.*

THIS ariseth Nervous as did the *Indicis Abductor*, and then growing fleshy, doth Obliquely ascend to the upper part of the first Bone of the *Thumb*, where, at its inside, it is inserted broad and fleshy, and by some this is called *Antithener*, and is allowed to bring the *Thumb* towards the *Fore-finger*, whence it gains the Name of *Adductor*.

This you have at Tab. XXIV. Fig. II.

Extensor primi Internodii Pollicis.

*This extends
the first Inter-
node of the
Thumb.*

THIS ariseth Tendinous from the upper part of the *Ulna*, under the *Supinator Radii Brevis*; and then growing fleshy, does appear again Nervous, in its Oblique descent over *Radialis Extensor*, and is implanted into the first Bone of the *Thumb*.

This you have at Tab. XXIII. Fig. I. and the same laid bare at Fig. II.

Extensor secundi & tertii Internodii Pollicis.

*This extends
the second and
3d. Internodes
of the Thumb.*

THIS ariseth broad and fleshy from that part of the *Radius*, near the *Ulna*, and ascending obliquely over it, doth divide its self into two unequal parts closely put together, and is carried along in a proper Channel to the *Appendix* of the *Radius*, its upper part being somewhat fleshy, which afterwards does end in a round Tendon, and is inserted into that Bone of the *Carpus* which receives the *Thumb*; the other being subdivided into two small Portions of flesh, doth at length likewise become Tendinous; the first of these being inserted into the first Joynt of the *Thumb*,
the

Fig. 1.

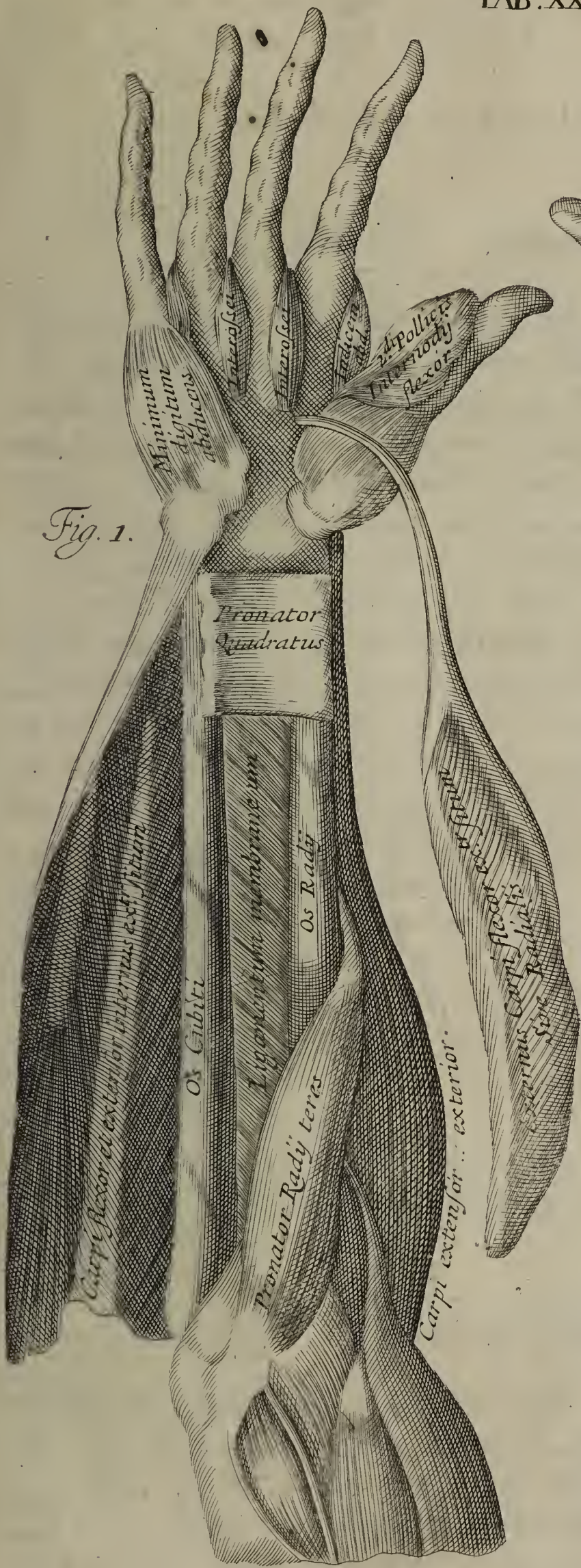
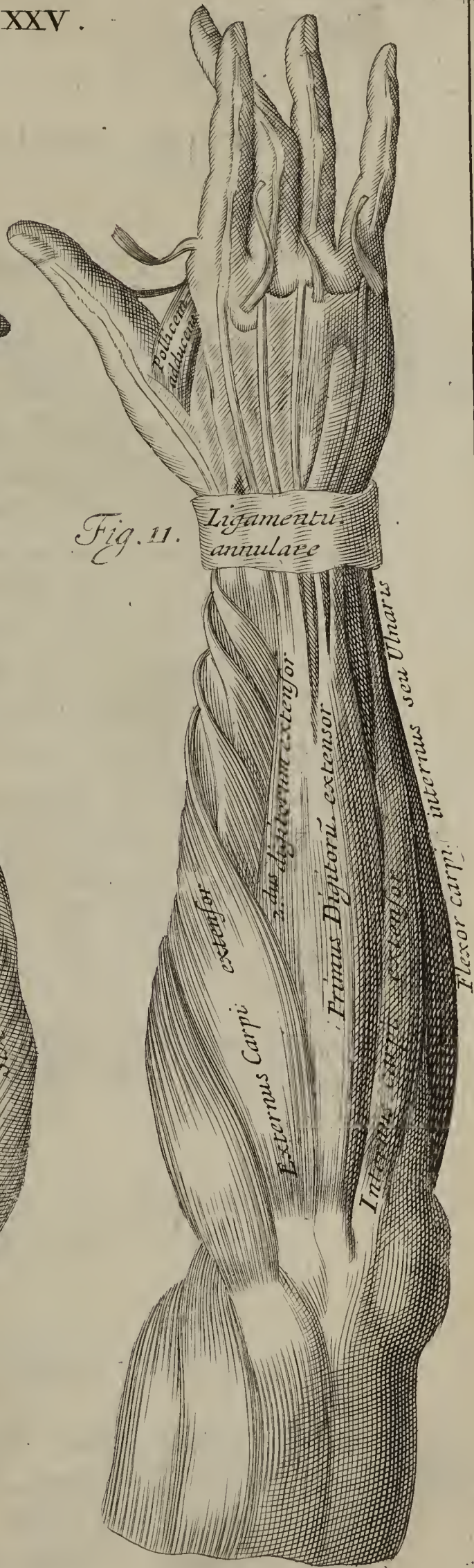
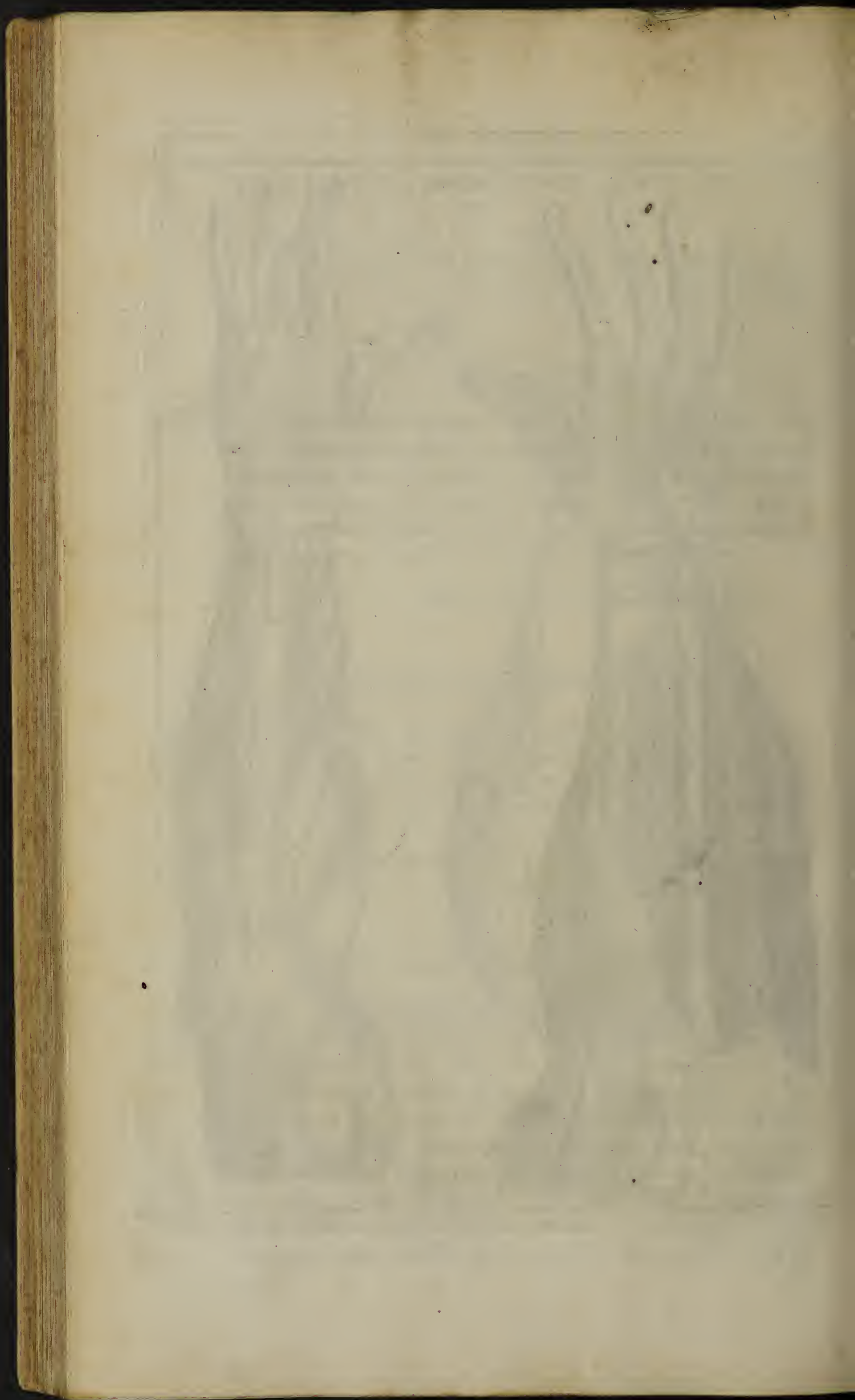


Fig. 11.





the other by a membrane fixeth its self to the second and third Joynts thereof, and is allowed to extend them.

This you have at Tab. XXIII. Fig. I. II.

Interossei Manus.

THE *Fingers* are brought to the sides, or to the *Thumb*,
or drawn from thence by the Help of these *Interosseal Muscles*; they being allowed Eight in Number, and are divided into *Externals* and *Internals*, being fleshy and small *Muscles*, arising fleshy internally from the upper Bones of the *Metacarp*, near the *Carpus*, and intermixing with the *Lumbricales*, become Tendinous at the first Joynt of every *Finger* laterally, and marching to their Insertions, their *Tendons* are seen to end at the Roots of the *Nails*: Six of these are implanted into the three *Internodes* of the Bones of the *Metacarp*, viz. two in every one, and as one is planted inwards, the other is placed outwards, while the others more particularly do belong to the first Bone of the *Metacarp* sustaining the *Index*, and is also incumbent on that part which doth receive the *Thumb*: The last adhering to the last Bone of the *Metacarp* in the outward part of the Hand, or in the Back part thereof.

These do work the Fingers laterally.

When they work together, they bring the *Fingers* nearer each others, and do also help forwards their *Extensions*, as *Galen* observes.

This you have at Tab. XXIV. Fig. I, II, and at Tab. XXV. Fig. I.

Auricularis, or Minimi Digiti Extensor.

THIS ariseth partly Nervous, and partly fleshy; Nervous at the end of the outward *Apophysis* of the *Os Humeri*, and partly fleshy from the upper part of the *Ulna*, and is outwardly implanted with a double Tendon into the *Little Finger*, and having past under the *Annular Ligament* at the *Carpus*, it becomes a large round and Nervous Tendon, which is inserted into the third Bone of the *Little Finger*, it

This extends the little-Finger.

intermixing its self in its passage, with the Tendon of the *Tensor Communis*.

This you have at Tab XXIV. Fig. II.

Minimi Digiti Abductor.

This abducteth the little Finger.

THIS Muscle is planted in the bottom of the Hand under the Little Finger, short and strong, it arising fleshy from the fourth Bone of the Carpus, as also from its third Bone and from the upper part of the Subjacent Metacarp, and extending its self by it, is inserted laterally outwards to the first Joynt of the Little Finger, and doth abduce it: *Riolan* writes that this may be divided into two Muscles.

This you have at Tab. XXII. Fig. I. and at Tab. XXIV. Fig. I, II. both in its place, and layd bare.

Pronator Quadratus.

This turns the Radius inwards.

THIS ariseth broad, and fleshy, (being transversely extended) from the lower and inner Side of the Ulna, and so passing over the Ligament that joyns the Radius, and the Ulna, doth implant himself into the upper and outward part of the Radius, with a broad beginning, much Representing a Mathematical Square, with four Equal Sides.

This you have at Tab. XXII. Fig. II. and Tab. XXV. Fig. I.

Pronator Radii Teres.

This brings the Radius downwards.

THIS is called *Teres*, from its form, it arising fleshy from the Radix of the inner prominence of the *Os Humeri*, and from the inside of the *Os Cubiti*, and is there joyned by a large fleshy Origination to the Radius, and descending thence Obliquely downwards by his side a little above its middle, is implanted into him fleshy, and afterwards a Nervous head or Tendon ariseth from him, which is in

Fig. 1.

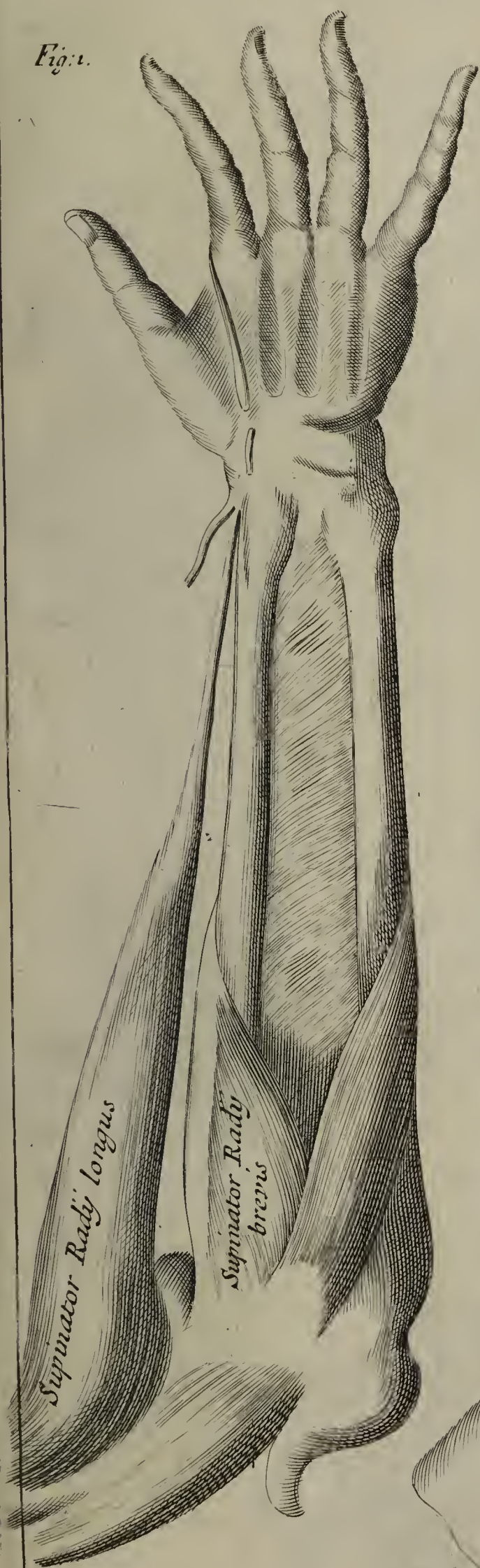
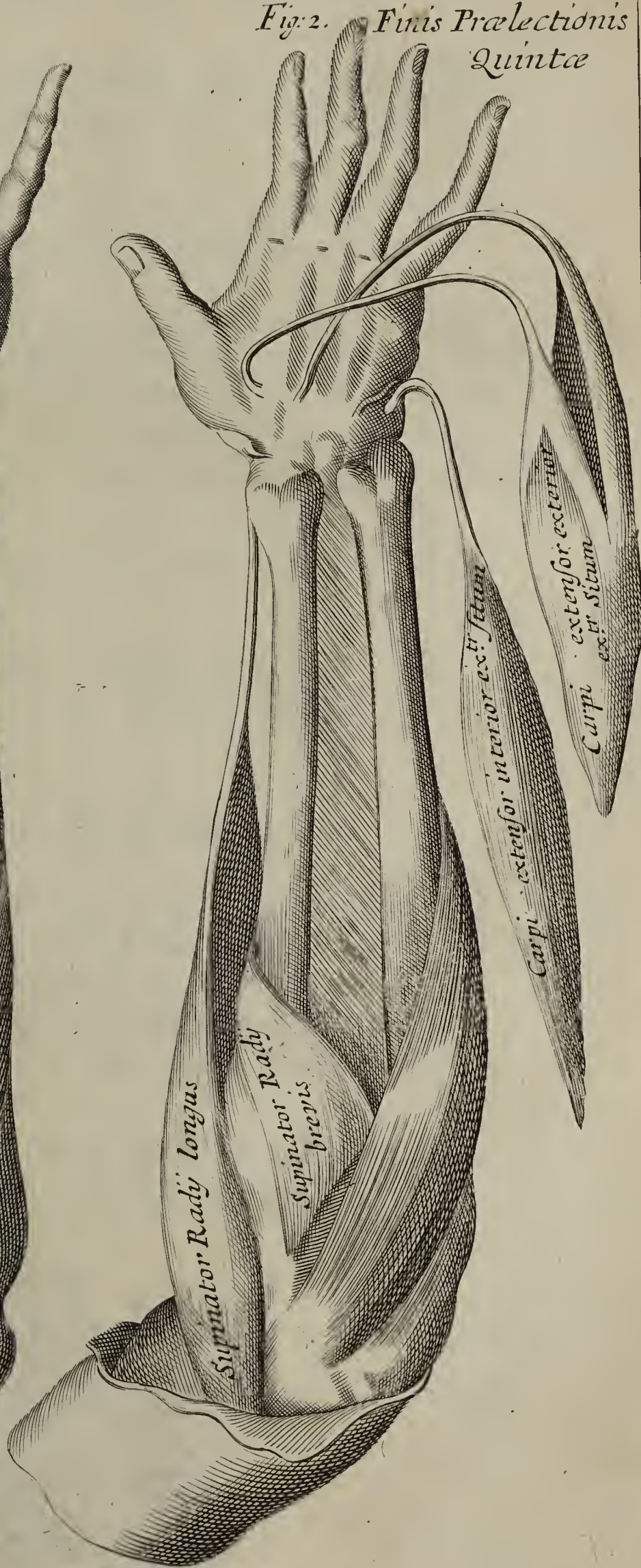


Fig. 2. Finis Prælectionis Quintæ



187
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187
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inserted into the outward *Head* of the *Radius*, and is held to bring it downwards.

This you have at Tab. XXI. Fig. I. Tab. XXII. Fig. I, II. and at Tab. XXV. Fig. I.

Supinator Radii Longus.

THIS hath its Name from its length, it arising broad and fleshy from the upper and outward part of the *Os Humeri*, and running Obliquely inwards, in its descent it grows less, and becomes a flat broad and Membranous Tendon, and is fastned to the outer and lower part of the *Radius*, near the *Carpus*. *This brings the Arm outwards.*

If this and its Partner do Act, they bring the *Radius* forwards, and the *Hand* with it.

This is shewn at Tab. XXI. Fig. I. and at Tab. XXVI. Fig. I, II.

Supinator Radii Brevis.

THIS being shorter and thinner than the former, doth arise from the outward part of the lower *Head* of the *Os Humeri*, and from the *Process* of the *Ulna*, partly Tendinous, and partly fleshy; and upon its recovering the middle of the *Radius*, is inserted to its upper part, a little below its prominence. *This doth assist the former.*

This you have at Tab. XXIII. Fig. I, II. and at Tab. XXVI. Fig. I, II.



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Lecture VI.

This last Lecture concludes with these following *MUSCLES*, viz.

<i>Psoas Magnus,</i>	<i>Suppopliteus,</i>
<i>Psoas Parvus,</i>	<i>Gastrocnemius Externus,</i>
<i>Iliacus Internus,</i>	<i>Plantaris,</i>
<i>Pectineus,</i>	<i>Gastrocnemius Internus,</i>
<i>Glutæus Major,</i>	<i>Tibialis Anticus,</i>
<i>Glutæus Medius,</i>	<i>Peronæus Primus,</i>
<i>Glutæus Minimus,</i>	<i>Peronæus Secundus,</i>
<i>Pyriformis,</i>	<i>Tibialis Posticus,</i>
<i>Marsupialis,</i>	<i>Extensor Pollicis,</i>
<i>Quadratus,</i>	<i>Flexor Primi & Secundi In-</i>
<i>Triceps,</i>	<i>ternodii Pollicis,</i>
<i>Obturator Externus,</i>	<i>Abductor Pollicis,</i>
<i>Membranosus,</i>	<i>Adductor Pollicis,</i>
<i>Sartorius,</i>	<i>Extensor Digitorum Longus,</i>
<i>Gracilis,</i>	<i>Extensor Digitorum Brevis,</i>
<i>Seminervosus,</i>	<i>Perforatus,</i>
<i>Semimembranosus,</i>	<i>Perforans,</i>
<i>Biceps,</i>	<i>Lumbricales,</i>
<i>Rectus,</i>	<i>Abductor Minimi Digiti,</i>
<i>Vastus Externus,</i>	<i>Transversalis Placentini,</i>
<i>Vastus Internus,</i>	<i>Interossei Pedis.</i>

Psoas Magnus, or Lumbalis.

AS the lower part of Man's Body is floored with a System of strong Bones, by which it is joyned and secured to the Trunk by the advantageous Ligaments added to them; as with the Share-Bone before, backwards with the *Os Sacrum*, and downwards with the *Coxendix*: So is the Foot also divided into three parts, viz. The *Thigh*, *Leg* and *Foot*, to all which parts, Nature hath given the *Machinism* of *Muscles*, as so many distinct Bodies, appointed as so many *Machines* of Motion: And Man

*This Con-
tracts the
Thigh.*

being framed in an erect Posture, doth naturally require these boney Pillars to sustain, and bear up this his Fabrick, which we see is every where well stored with various and different Bodies, and Forms of *Muscles*; both for the better countermanding each other in their Motions, as also for keeping the Limbs in that erect Posture. we for the most part see them obtain. I begin with this of the *Psoas*, which hath its Name from its Origination, and called *Magnus* to distinguish it from that lesser one, which is sometimes shewn, it being planted in the Cavity of the *Abdomen*, and doth arise livid, fleshy and large, from the two lower *Vertebres* of the *Thorax*, and the three upper of the *Loins*, and descending somewhat round, from the inner part of the *Os Ileon*, even to the *Os Pubis*, through its *Sinus*, is inserted by a round and strong Tendon into the less *Trochanter* of the *Thigh*, drawing it upwards, and at the same time bending it inwards.

Because the *Kidneys* do frequently press upon this *Muscle*, as *Laurentius* well observes, over which runneth a Notable Nerve: Such as are troubled with the Stone, do frequently perceive a sleepiness on that side of the *Thigh*, in which the Stone is lodged, occasioned by its compressing this part.

This you have at Tab. XXVII. both in and out of its place.

Psoas Parvus.

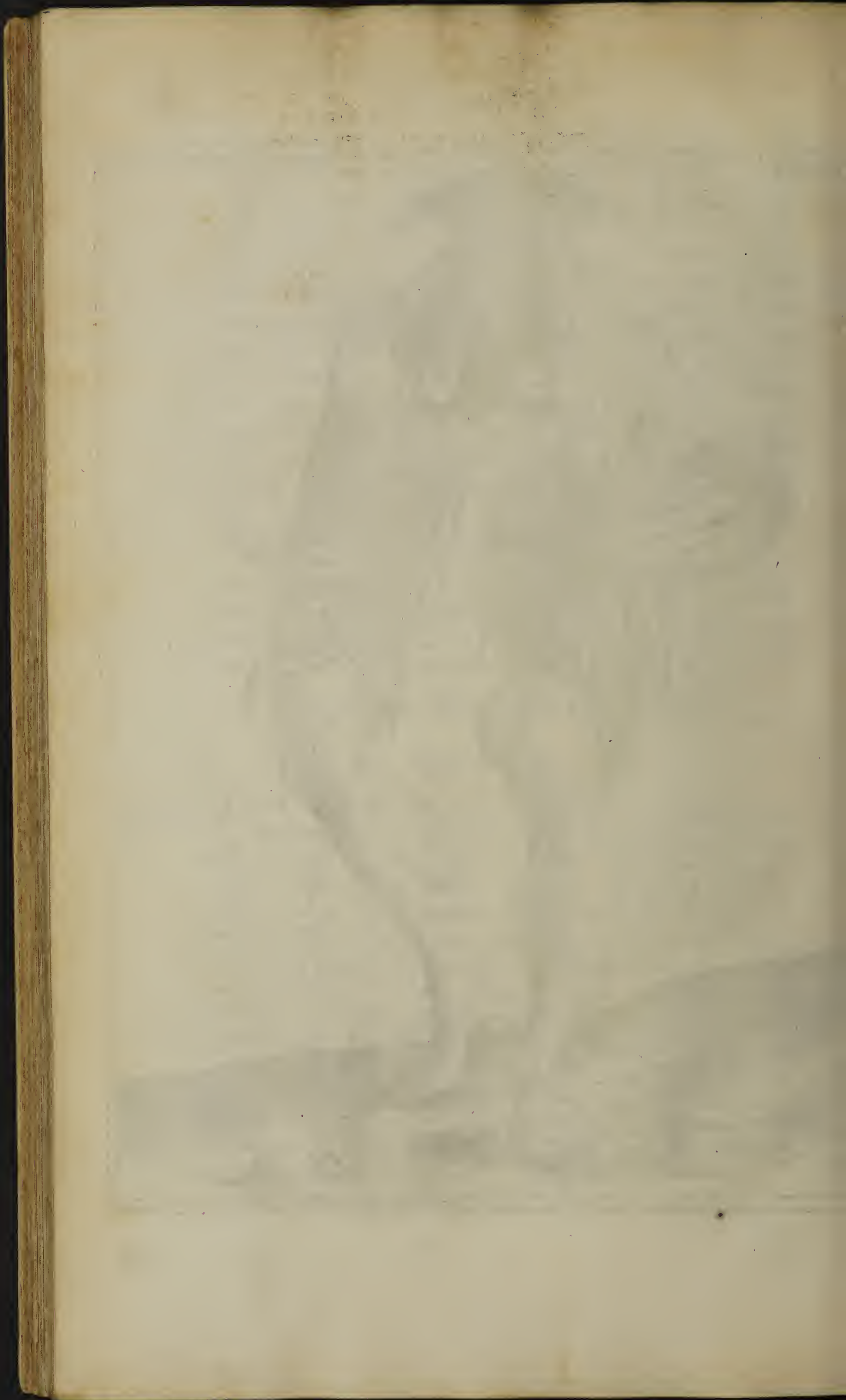
*This doth
assist the former.*

THIS is not seen in all Bodies; when you find it, you will meet it arising fleshy from the upper part of the first *Vertebres* of the *Loins*, internally, within the *Abdomen*: *Baubine* saith that it ariseth fleshy the length of a *Little-Finger*, and is dilated with a slender and broad Tendon above the *Psoas Magnus*, and ends with the *Psoas*, and *Ileon*, embracing them both very firmly: *Riolan* asserts he could never find this in Women: *Bartholine* writes, that that which he found in a Man at the *Hague*, had a fleshy Origination equalling the breadth of three *Transverse Fingers*, and was inserted fleshy into the upper and back part of the *Os Ileon*, at the beginning of *Iliacus Internus*, it being made as a Pillow to the former. Mr. *William Molins*, in the Year of his being Master of *Anatomy*, shewed this *Muscle* in a body then dissected by him at the *Theater* in *Chirurgeons-Hall*.

This Muscle lying under the former, is not to be shewn by Figure.

Ili-





Iliacus Internus.

THIS ariseth with a thin and fleshy beginning, in the inner Cavity of the *Os Ileon*, and in its descent over it, ^{This bends the Thigh directly.} in its lower part, it joyns its self with the former, and is implanted into the same *Rotator* a little below it.

Obs. This and the former are allowed *Elevators* of the Thigh; and whereas the *Psoas* is fastned above to the *Vertebres* of the Back and Loins, and this *Iliacus Internus* to the *Os Ileon*, as to the Centers of Motion; and they both being tyed downwards to the less *Trochanter*, as a part easily moveable, is thereupon drawn upwards by their Contraction, and by the Abbreviation of these said *Muscles*; so that consequently, the whole Thigh hereupon must necessarily be bent, and lift up, (as being more readily pulled towards the *Vertebres* of the Back and Loins, than those towards the Thigh) by making a Flexure of it.

Obs. By the Benefit of This, and *Psoas Magnus*, the Thighs are elevated and brought forwards by Contraction; and whilst the *Tarsus* of the hinder Foot is gradually attolled, the Center of Gravitation is transferred from the *Tarse* to the *Metatarse* and Toes; and hence is it, that whilst the Fore Foot is ready to land on the ground, the Hinder Foot, by wheeling upon the *Metatarse* and Toes, doth draw the Trunk of the Body forwards, that the other Limb being extended, the Center of Gravitation may be turn'd upon the Heel of the Fore Foot: Which is the Reason why we are so subject to fall in running; our Body being hurried in a violent Motion, doth raise the Hinder Foot from the *Tarse* to the *Metatarse* and Toes with so much quickness and violence, that the Fore Foot upon the least hindrance or obstruction, cannot so readily land on the Ground, or receive the weight of the Body, so as to cause a stop to its Fall, as Dr. Collins well observes. Again, as the *Psoas* is fastned above to the *Vertebres* of the Back and Loins, and the *Iliacus Internus* to the Surface of the *Os Ileon*, as to the Centers of Motion, and both of them are tyed below to the less *Trochanter*, as a Part more easily moveable; the Thigh thereupon is drawn upwards, by the Contraction and Abbreviation of these *Muscles*, they lifting up the Thigh by their making this its Flexure, whilst the opposite Motion

or Extension of the Thigh is made good by the *Glutæi*; and as the *Psoas* and *Iliacus Internus* do pull the Thigh upwards, so the *Gracilis*, *Seminervosus*, *Semimembranosus*, and *Biceps*, do bring it backwards.

This is shewn at Tab. XXVII. in and out of its place.

Pectinæus, or Lividus.

*This draws
the Thigh up-
wards and out-
wards.*

THIS ariseth broad, thick and fleshy from the outward part of the *Os Pubis*, near its *Cartilage*, and Obliquely descending, is inserted by a flat and short Tendon into the inside of the *Os Femoris*, on its back part, under its lesser *Trochanter*, bringing the Thigh upwards and outwards: *Baratholine* will have this to be an *Adductor*.

This Muscle is an Assistant to *Triceps*; and by drawing the Thigh inwards, it proves of great Use in riding, this Muscle in a great Measure, keeping the Horse-man close to his Saddle; and by some, it is allowed as a part of the said *Triceps*, though it doth not so closely adhere to it, but that it may with Ease be separated from it.

This you have at Tab. XXVII. in its place, and laid bare, and at Tab. XXX. you have it so again.

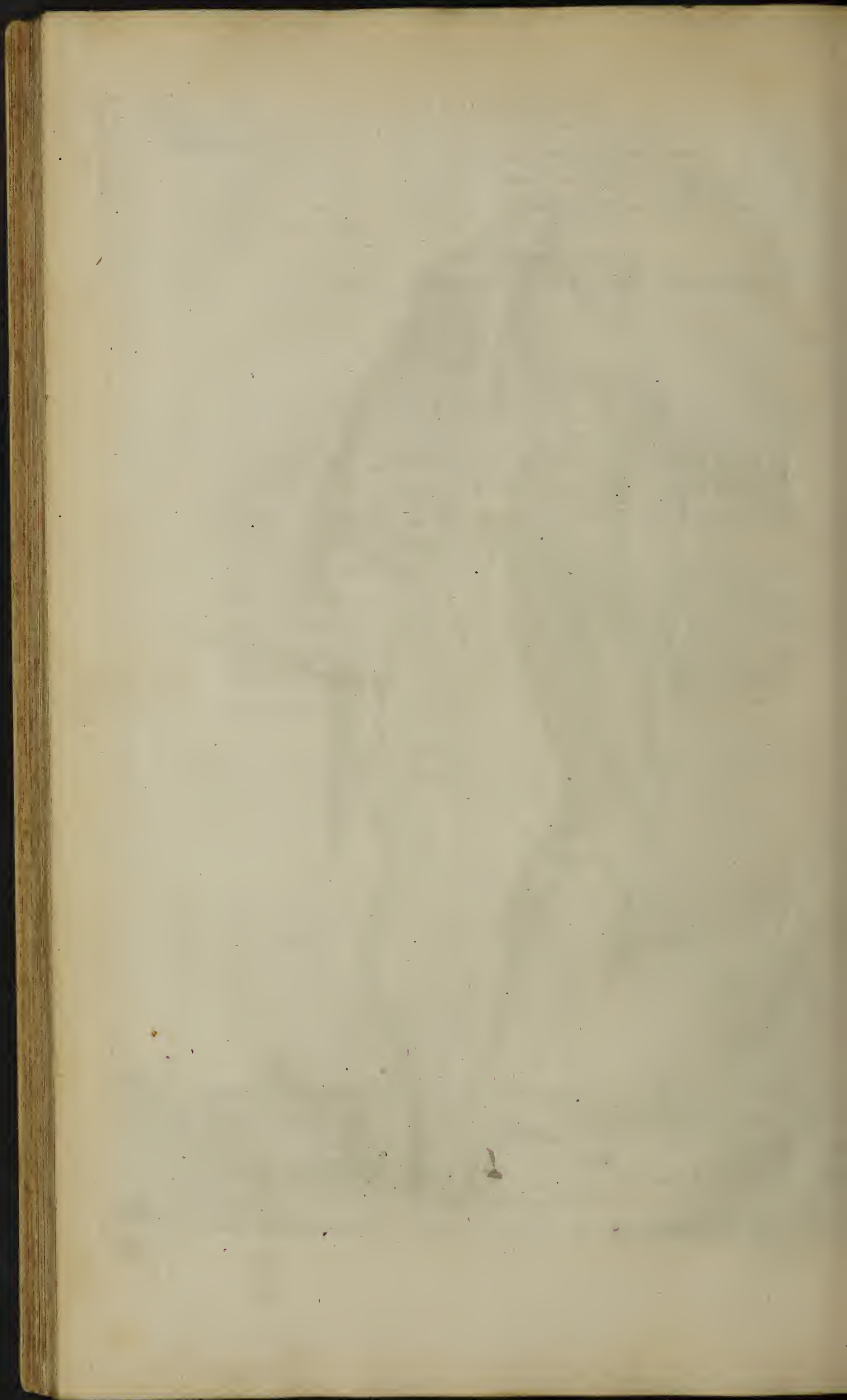
Glutæus Major.

*This pulls
the Thigh di-
rectly back-
wards.*

THIS is the first, and the largest of the three *Extensors*, which, with the other two, do make up the fleshy Mass of the *Buttocks*: The Skin being laid bare, they readily do shew themselves; and this especially shews its self with a broad, and Semicircular Beginning, enated from diverse Bones; it arising Tendinous, from a great part of the Spine of the *Os Ileum* externally, and then thick and fleshy, from the back part of the Spines of the *Os Sacrum* laterally; and thirdly, from the *Os Coxendix*, large, and fleshy, running Obliquely downwards, over the Juncture of the said Bone, and then growing narrower, is implanted by a broad and strong Tendon, into the first Impression of the great *Trochanter*, and part of it also into the *Linea Aspera*, on the back part of the *Os*

Femo-





Femoris, below the aforesaid great *Trochanter*, and is said to pull the *Thigh* directly backwards.

Here Mr. *Comper* has shewn a peculiar respect to this *Muscle*: He allowing it more Names than of any his Predecessors, making it both *Magnus*, *Major*, and *Maximus*, according to his new correct Way of Writing.

This you have at Tab. XXVIII. in its place, and laid bare.

Glutæus Medius.

THIS being lodged under the Tendinous part of the former *Muscle*, being much like it in its Situation and Make, doth arise fleshy from near the whole outward part of the Spine of the *Os Ileon*, as also broad and Semicircular; and descending Obliquely, doth narrow its self, enwrapping the Joynt as the former, and is inserted by a Nervous, broad and strong Tendon to the upper and outward part of the great *Trochanter*, drawing the *Thigh* upwards, and inwards, as some do suppose; whilst I humbly conceive, it doth bend it, and doth assist the former in depressing the *Os Femoris*.

This assists the former in its Extension.

This you have at Tab. XXVIII.

Glutæus Minimus.

THIS lodging under the former, being lesser than it, as the second is smaller than the first, does also arise like it, both broad, semicircular, and fleshy, from the back of the *Os Ileon*, and is inserted with a large and strong Tendon into the upper and inner part of the Root of the great *Trochanter*; this assisting both the former in all their Actions, its *Fibres* carrying the same Series in it with those of the former; and I do humbly conceive, they do all agree in pulling the *Os Femoris* downwards, and backwards, after it has been elevated by the *Psoas*, and *Iliacus Internus*, as I have formerly shewn.

This extends as the former.

These are generally call'd the *Cushion Muscles*, upon which we sit: All these three *Glutæi* joyntly assisting each other in extending the *Thigh*, as they are fastned above, either to

the *Os Ileon*, *Sacrum*, and *Coccix*, and are inserted either a little beneath, or into the great *Trochanter* of the *Thigh*, which being less ponderous than the *Trunk*, is more easily moved, than the other more fixed, and heavy Bones; because the *Thigh-Bone* playing in a *Socket*, may be easily depressed in *Extension* by the *Glutæi*; which being contracted and shortened, do pull the *Thigh* downwards, and maketh it more streight in its progressive Motion.

This is another of *Medicasters* Complaints against me, when he saith, I have given no Description of *Glutæus Minimus*, because in its place I called it *Glutæus Minor*; which said Error is copied afresh by Mr. *Cowper* in his *Anatomia Reformata*, and is not to be accounted as a *Superlative* Error in him; altho' he as well as his Brother *Medicaster* pronounces it to be such a one in me.

This you have at *Tab. XXXII.* laid bare.

Pyriformis, or Iliacus Externus.

This works
the *Thigh* a-
bout.

THIS hath its Name from its Figure, and *Iliacus Externus* from its Situation: It ariseth thick, round, and fleshy, from the three lower *Vertebres* of the *Os Sacrum*; and Obliquely marching to the great *Sinus* of the *Os Ileon*, is inserted by a round *Tendon* into the fourth Impression of the great *Trochanter*, bringing the *Thigh* upwards and outwards; and considering its Bigness, it is allowed one of the thickest *Muscles* in humane Body, stufed up with variety of *Fibres*.

This you have at *Tab. XXVIII.* and at *Tab. XXIX.* it is laid bare, as also at *Tab. XXXII.* you have the same laid bare.

Obturator Internus, or Marsupialis.

This brings
the *Thigh* a-
bout outwards.

THIS ariseth large and fleshy, from the Membrane internally which covereth the great Perforation of the *Os Pubis*; and covering that Bone, and the *Coxendix*, doth narrow its self, sending forth three or four *Tendons*, which are carried through the *Sinus* of the *Coxendix*; which is arched over according to its length with a strong *Ligament*, backwards to the outward part of the *Coxendix*, where they are re-

re-





received into a fleshy purse; and so making one Tendon, are implanted into the *Sinus* of the great *Trochanter*.

This *Muscle* must be raised inwards, where having got through the *Sinus* under the *Ligament*, you will plainly see the *Purse* shew its self.

This you have at Tab. XXVIII. and at Tab. XXXII. it is laid bare.

Quadratus Femoris.

THIS hath its Name from its Figure, it arising broad and fleshy, from the rising of the *Os Ileon*, and from the *Appendix* of the *Coxendix*, and doth run broad, short, and fleshy towards the back part of the great *Trochanter*; and is inserted into that space of the Bone which is between the two *Trochanters*.

This brings the Thigh about backwards.

The Head of *Lividus*, and a part of *Triceps* must be thrown off, before the beginning of this will be cleared, or *Tbtuator Externus* found out: *Vesalius* doth divide this into two *Muscles*. This is also called *Quadriginimus*, and you may see it carries that Name in my Figure.

This you have at Tab. XXXII.

Triceps.

THIS takes its Name from its three *Heads*, and is the largest *Muscle* of the *Thigh*, it apparently shewing its three Heads or Originations; all which do conclude and terminate in one: Its first and largest head being partly fleshy, and partly Nervous, arising from the *Appendix* of the *Coxendix*; where tumifying, it dilates its self into the back part of the *Thigh*; and then growing small, doth end in a strong round Tendon, at the inner and lower head of the *Os Femoris*; the second riseth fleshy from the *Coxendix*, at its Conjunction with the *Pubis*, and doth terminate at the Root of the lesser *Trochanter*; and in the upper part of the *Aspera Linea* of the *Thigh-Bone*; the third riseth fleshy from the

This brings the Thigh inwards.

Y

low.

lower part of the *Os Coxendix*, and is implanted into the *Linea Alba* of the said *Os Femoris*.

This is allowed a riding *Muscle*, bringing the *Thigh* inwards, and fixeth the *Rider* to his Seat, and may well enough be called *Musculus Pudicitiae*; it being assisted by the *Lividus*, in keeping the *Legs* close.

This you have at Tab. XXIX in and out of its place, as also at Tab. XXX. and Tab. XXXI.

Obturator Externus.

*This works
the Thigh a-
bout inwards.*

THIS hath its Name from its Situation, it arising from the outward part of the Cavity, between the *Os Ischium*, and the *Os Pubis*, lying under the *Pectineus*: It riseth large and fleshy, from the Membrane that enwrappeth the Perforation of the *Os Pubis* outwards; and then marching transversely to the back part of the *Thigh*, (becoming narrower) is inserted by a strong Tendon into the *Sinus* of the great *Trochanter* of the *Thigh-Bone*, near the termination of the *Triceps*, and doth turn the *Thigh* inwards.

You must carefully bring your *Knife* inwards about the Edge of the Perforation of the *Os Pubis*, then this will plainly appear, and shew its Origination.

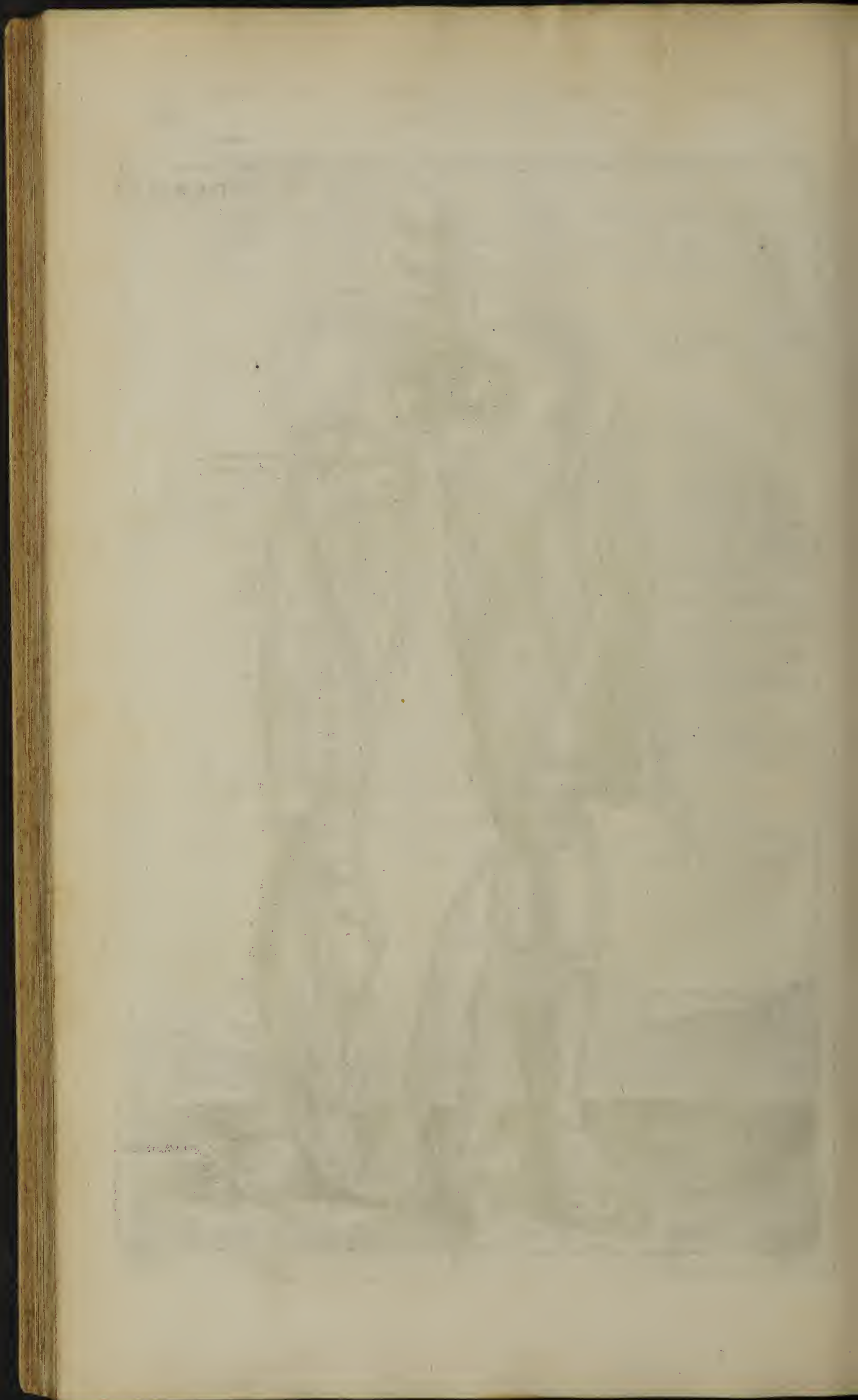
This you have at Tab. XXIX. both in and out of its place, as also at Tab. XXX. Tab. XXXI. and Tab. XXXII.

Membranosus.

*This brings
the Thigh and
Leg out-
wards.*

THIS hath its Name from its Membranous Expansion; it arising sharp and fleshy from the upper *Spine* of the *Os Ileum*, on that side next *Sacrospinus*, whence it turneth into a very long and broad Tendon, not much unlike the *Transverse Ligament*; and is therefore by some called *Fascia Lata*, enwrapping almost all the *Muscles* of the *Thigh* in it, and not only so, but those of the *Patella* and *Focils*, in their outward parts, and then doth joyn its self with the *Ligamentum Annulare*, which keeps in the Tendons of the *Toes* and *Feet*, as some will have it; whilst others as readily write, that this *Fascia*
Lata





Lata goes no farther than the lower part of the *Thigh-Bone*, or the upper parts of the *Focils*.

This *Muscle* helps the Legs in Extension, in bringing them forwards and outwards.

This you have at Tab. XXX. laid bare.

Sartorius, or Facialis.

THIS hath its Name from the Use which is made of it, in sitting cross-legg'd; and *Facialis*, from its passing over the *Thigh* like a *Swathing-band*, in keeping the rest of the *Muscles* light in their places: It ariseth with a sharp and fleshy beginning from the Fore part of the *Spine* of the *Os Ileon*, near the former *Muscle*, and running Obliquely inwards over the *Muscles* of the *Thigh*, It becomes Tendinous in its Passage over the inner and lower head of the *Os Femoris*, and is inserted by a broad Tendon (as some Authors affirm) and round (as others will have it) below the upper part of the *Tibia*. *This brings i. inwards.*

Riolan writes, that this doth bring the *Leg* inwards, and therefore thinks it rather extends it.

This you have at Tab. XXVII: and at Tab. XXX. in and out of its place.

Gracilis.

THIS hath its Name from its Make and Shape; it being a very slender *Muscle*, lying next the former: It ariseth partly Nervous, and partly fleshy from the middle of the *Os Pubis* internally, between the first and second Heads of the *Triceps*; and growing narrower in its streight Descent, in the inside of the *Thigh*, doth then become a round Tendon, at the inner Head of the *Os Femoris*, it inserting its self into the *Tibia* next the former; this assisting it in its Contraction, and bringing the *Thigh* and *Leg* inwards. *This doth assist the former.*

This you have at Tab. XXX. both in and out of its place.

Seminervosus.

*This bends
the Tibia back-
wards.*

THIS takes its Name from its Substance, which may be accounted either Nervous, or Membranous; it being partly Nervous, and partly fleshy, it arising small and Nervous from the same *Appendix* as the former; and then continuing so half way in its Descent, does grow fleshy, running by the backpart of the *Os Femoris* to the *Ham*; near which it becometh a round Tendon, and reflecting its self, is inserted into the forepart of the *Tibia*:

The three Tendons of these three *Muscles*, and those following, do make up the inward *Ham-Strings*.

This you have at Tab. XXVIII. as the third Flexor, and at Tab. XXXII. both in and out of its place.

Semimembranosus.

*This bends
the Leg.*

THIS hath its Name also from its Membrane-like Substance, lying just under the former; it arising with it, both broad and Membranous, and running downwards from the Protuberance of the *Os Ischium*; where growing broader, doth continue Membranous near half its Progress, and after growing fleshy, and thick, it getting under the round Tendon of the former, does afterwards make a short and thick Tendon, which inserts its self into the inner Side of the *Tibia*. The fleshy Belly of the former *Muscle* lodging above, and this lying just under it, but their Tendons being quite contrarily distributed and disposed.

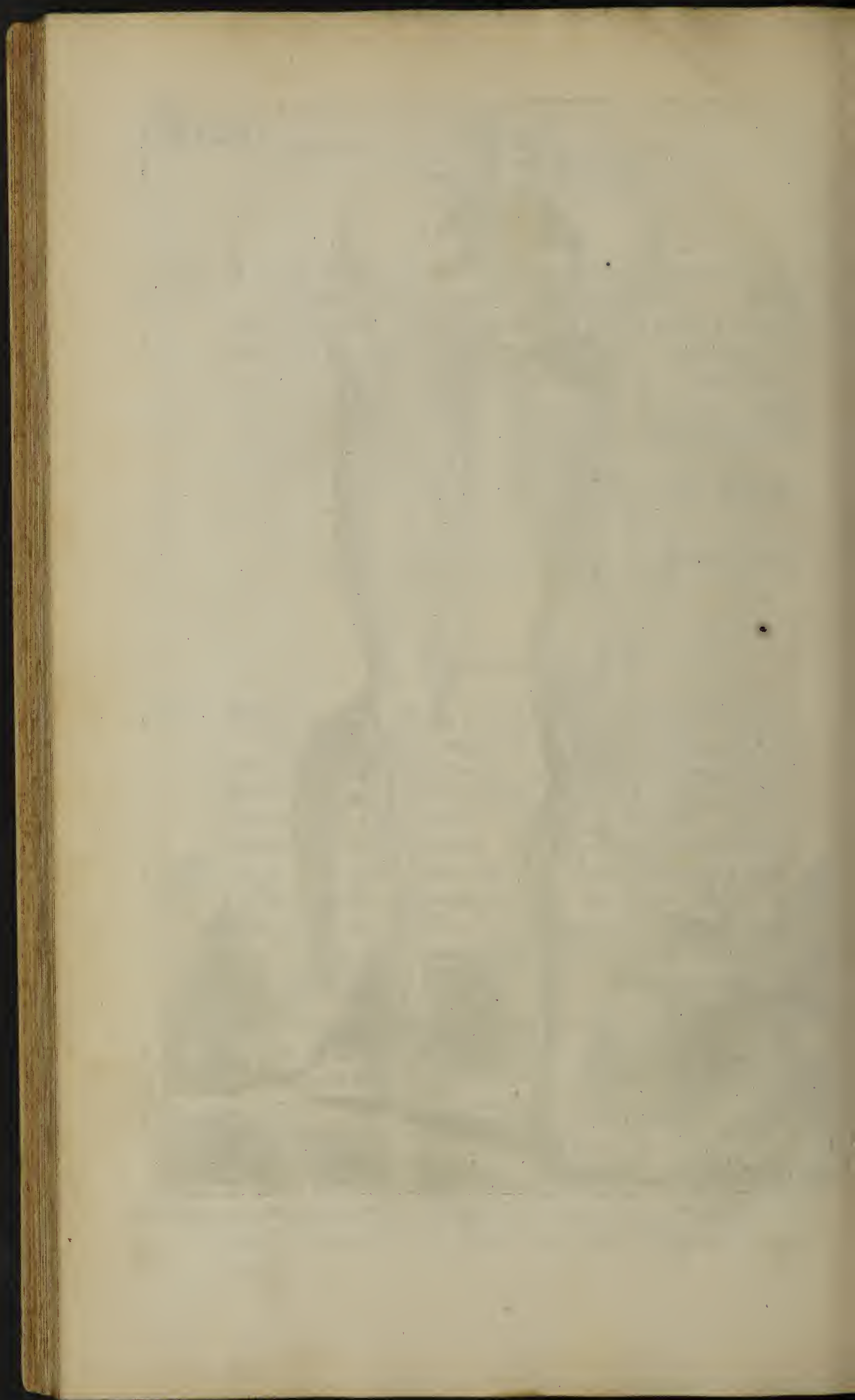
This you have at Tab. XXVIII. as the fourth Flexure, and at Tab. XXXII. the same both in and out of its place.

Biceps Femoris.

*This con-
tracts the Leg.*

THIS hath its Name from its two Heads, or Originations; It ariseth sharp and Nervous from the same *Appendix* as the two former; and then growing fleshy, and large, in





in its March, externally downwards, and having got near half its Progress, is seen to narrow its self, and joyning with the other Head which ariseth from the *Linea Aspera* of the *Os Femoris*, where the *Gluteus Major* hath its Insertion; and growing thicker, tho' outwardly Tendinous, as it marcheth in a Channel in the outward *Appendix* of the *Os Femoris*, it firmly ties it self to the outside of the upper *Appendix* of the *Fibula*, with its Tendinous Insertion.

This you have at Tab. XXVIII. as the fifth Flexor, and at Tab. XXIX. it is laid bare, and at Tab. XXXI, XXXII. both in & out of its place.

Rectus Femoris.

IT hath its Name from its streight Progress, and carries in it the true Figure of a *Muscle*, it arising fleshy from the lower Spine of the *Os Ileon*; and running along the length of the Thigh, with its thin and fleshy Belly, it wholly becomes Tendinous, before it reacheth the *Patella*, where it expands its self into a strong broad Tendon, entirely covering the said *Patella*, and being joyned with the Tendons of *Vastus Externus*, and *Vastus Internus*, it is inserted with them to the upper part of the *Tibia*, at a Prominence there provided for its Reception.

This extends the Leg.

This you have at Tab. XXVII, and at Tab. XXX. and Tab. XXXI. both in and out of its place.

Vastus Externus.

THIS takes its Name from its great Mass of Flesh, it arising outwardly Nervous, and inwardly fleshy, from the outward part of the great *Trochanter*, and joyning its self to the upper and outward part of the *Os Femoris*, and descending fleshy to the *Patella*; it next becomes a Membranous and broad Tendon, and it mixing its self with the Tendon of *Rectus*, doth help towards the making a stronger Covering for the *Patella*, it carrying the same Insertion with it.

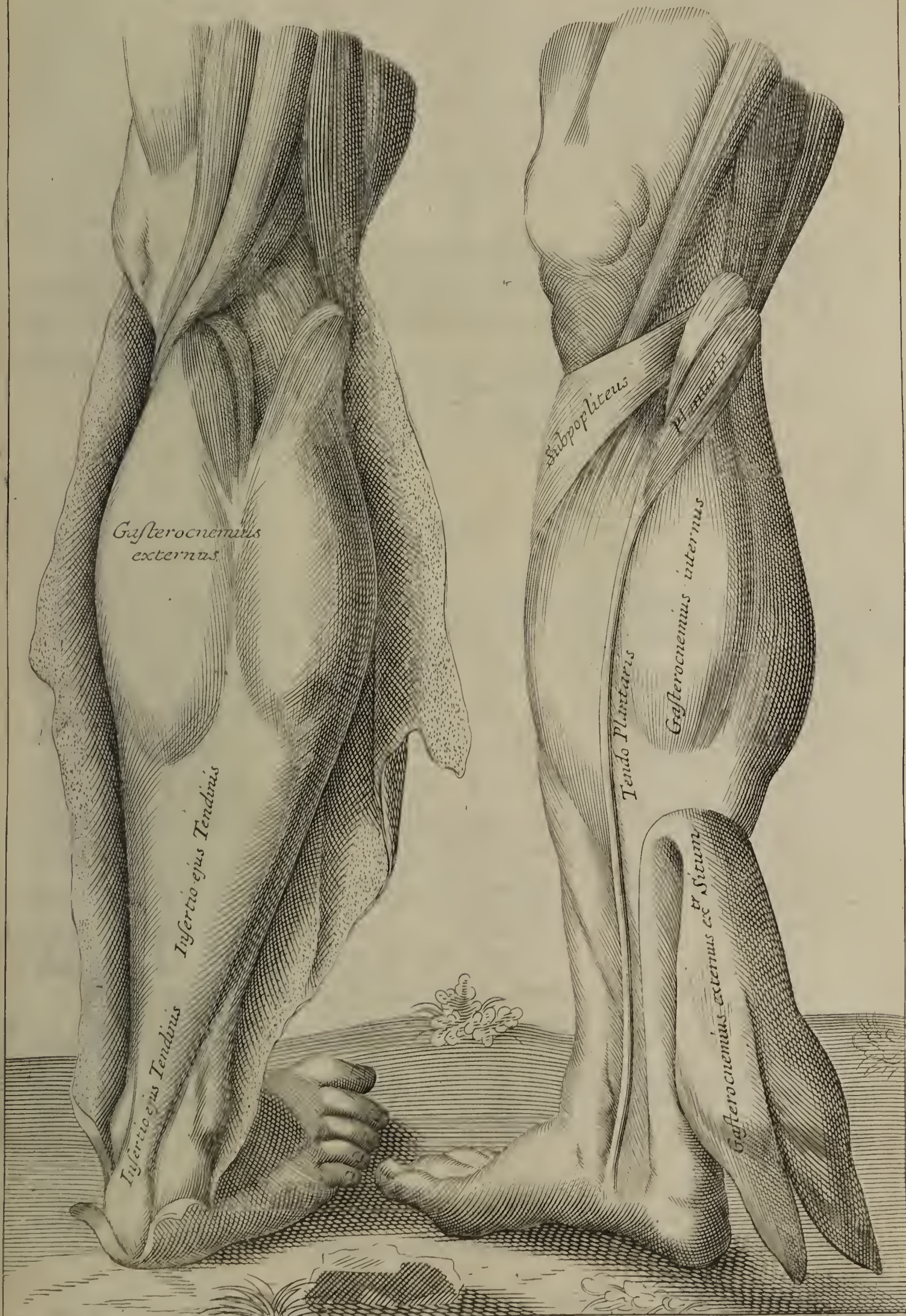
This extends the Leg.

This you have at Tab. XXXI. in its place.



Fig: I.

Fig: II.





allowed it; as also from the outward head of the same Bone, and by some is taken for two proper *Muscles*, having in their descent two large fleshy Bellies, then marching towards its Insertions, are joyned to each other about the mid-way, where they become one entire strong and Nervous Tendon, and upon narrowing its self, doth intermix its self with the Tendon of *Gasterocnemius Internus*, above its Insertion to the *Os Calcis*, making one strong *Muscle* with a double Origination.

Riolan saith, That there are two *Sesamoidal* Bones, found at the two beginnings of this *Muscle*; this being not only allowed an *Extensor* of the Foot, but is very assisting in pulling it backwards.

This you have at Tab. XXXIII. Fig. II. laid bare, with both its Heads.

Plantaris.

THIS takes its Name from its expanded Tendon, which it sends into the Sole of the *Foot*, it arising fleshy, round, and slender, under the former, from the upper and back part of the lower *Appendix* of the *Os Femoris*, and then descending Obliquely, between both the *Gasterocnemii*; it becomes a strong flat Tendon, and passing along between these their fleshy Bellies, by their broad Tendons, doth run over the *Os Calcis*, and then stretcheth its self over the Sole of the Foot, firmly adjoyning its self to the fleshy part of the *Perforatus*, and is afterwards inserted on both sides to the first *Internodes* of the *Toes*.

This moves the Skin of the Sole of the Foot.

This *Muscle* is allowed the same service to the Foot, as the *Palmaris* is to the Hand, in extending it.

This you have at Tab. XXXIII. Fig. II. and at Tab. XXXV. Fig. II. you see it laid bare.

Gasterocnemius Internus, or Soleus.

THIS is implanted under the two former *Muscles*, and hath the Name of *Soleus*, given it from its likeness it hath with a *Sole-Fish*: It riseth from the upper and

This extends the Foot,

back Commissures of the *Tibia* and *Fibula*, being livid, strong and Nervous, from the backward *Appendix* of the *Fibula*, and growing larger and more fleshy, it joyns its self to that and the *Tibia*, and descending near half its Progress, doth narrow its self, and becometh Tendinous, making one with the *Gasterocnemius Externus* both in its Origination and Insertion.

These three *Muscles*, are all united in their terminations, forming one very strong Tendon, implanted into the back part of the *Os Calcis*, which by reason of its Largeness, and singular Strength, above the Tendons of other *Muscles*, does gain the name of *Chorda Magna*, which being either bruised or wounded, (as *Hypocrates* writes) doth prove very dangerous, if not mortal; this part also being any time inflamed, does soon run into a Mortification.

These three *Muscles* contracting themselves, do relax the *Tibialis*, and *Peroneus secundus*, when they have drawn the Foot upwards, and do also extend the *Tarsus*, by reducing it to a streight Position, making then direct *Angles* with the *Leg*.

This you have at Tab. XXXIII. Fig. II. and at Tab. XXXV. Fig. I. it is laid bare.

Tibialis Anticus.

This bends
the Heel.

THIS takes its Name from its Situation, it arising sharp and fleshy from the upper *Appendix* of both the *Focils*, and closely adhering to the sides of the *Tibia*, and to the Ligament which binds them together, then being dilated, grows narrow about the midde of the *Tibia*, where it makes a strong and round Tendon, which doth run Obliquely over the said *Tibia*, and under the Ligament of the Foot, and is implanted into that inside of the *Os Tarsi*; that is, before the *Os Pollicis*, and sometimes under the same Ligament of the Foot, being divided into two Tendons, one of which is inserted into the *Os primum Innominatum*, the other into the aforesaid Bone of the *Os Pollicis* of the *Metatarsus*.

This *Muscle*, I conceive doth govern the Foot in its Motion, keeping it from squayling too much outwards.

This you have at Tab. XXXIV. Fig. II. and Tab. XXXVI. Fig. I.

Pe-



1871
The following is a list of the names of the persons who have been admitted to the membership of the Society since the last meeting of the Council.

Name	Address
Mr. J. H. Smith	123 Main St., New York
Mr. W. B. Jones	456 Broadway, New York
Mr. C. D. Brown	789 Third St., New York
Mr. E. F. Green	101 Fifth St., New York
Mr. G. H. White	234 Sixth St., New York
Mr. I. J. Black	567 Seventh St., New York
Mr. K. L. Grey	890 Eighth St., New York
Mr. M. N. Blue	123 Ninth St., New York
Mr. O. P. Red	456 Tenth St., New York
Mr. Q. R. Yellow	789 Eleventh St., New York
Mr. S. T. Purple	101 Twelfth St., New York
Mr. U. V. Pink	234 Thirteenth St., New York
Mr. W. X. Orange	567 Fourteenth St., New York
Mr. Y. Z. Green	890 Fifteenth St., New York

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Peronæus Primus.

THIS *Muscle* doth arise Nervous outwardly, and inwardly fleshy from near the upper *Appendix* of the *Fibula*, and in its descent, doth adjoyn its self to its outward part, being outwardly round, and inwardly livid, and red next the Bone, and having marched near half its progress, it becomes a strong flat Tendon, running Obliquely backwards through the *Sinus*, under the outward *Malleolus*, and is inserted into the root of the *Os Metatarsi* of the great Toe.

This brings the Foot outwards.

This *Muscle* draweth the *Foot* somewhat outwards, and governs it in progressive Motion, keeping it from being thrown too much inwards.

This you have at Tab. XXXVI. Fig. I. and at Fig. II. it is laid bare.

Peronæus Secundus.

THIS by some *Anatomists* is called *Semifibulæus*; it arising long and fleshy about the middle of the outward part of the *Fibula*, under the former, and having made half its progress, it becomes Tendinous as it runs under the *Malleolus Externus*, and is implanted with its Tendon, and the Tendon of the former into the *Os Metatarsi* of the little Toe, and serves to bring the *Foot* and *Toes* outwards.

This doth act as the former.

And as the *Tibialis Anticus* and this *Muscle*, contracting themselves, do raise up the *Tarsus* from the ground in progressive Motion; so the *Gastrocnemii* and *Plantaris* are allowed to relax the same, after they had been so contracted.

This you have at Tab. XXXIV. Fig. I, II. and at Tab. XXXVI. Fig. I.

Tibialis Posticus, or Nauticus.

THIS hath its Name from its Situation, it being planted backwards, as also the Name of *Nauticus*, from the use that *Saylers* make of it in climbing the *Shrovs*: This ariseth partly Nervous, and partly fleshy, from the upper and back part of the *Fibula*, as also near the *Tibia*, and having past near half its progress, it narrows its self, and then

This brings the Foot inwards and upwards.

A a

grow-

growing fleshy again, it afterwards converts its self into a strong and round Tendon, which marcheth in a *Sinus* on the back part of the lower *Appendix* of the *Malleolus Internus*, where being bound by a strong Ligament overspreading it, and recovering the Sole of the Foot, is inserted into the lower part of the *Os Metatarsi*, which joyns its self with *Os Cubeiforme*, and sometimes it hath been seen to afford two Tendons, one of which hath been implanted into *Os Naviculare*, and the other into *Os Innominatum*.

This is shewn at Tab. XXXV. Fig. I. II. and at Tab. XXXVI. Fig. II.

Extensor Pollicis.

This extends
the great Toe.

THE Toes of the Foot, (as well as the Fingers of the Hand) are furnished with three ranks of Bones, except the great Toe, which is only accommodated with two Bones, all which are moved by the benefit of proper Muscles allowed them. This Muscle which extends the great Toe ariseth fleshy from the outward side of the *Tibia*, as *Vesalius* writes, where it parts from the *Fibula*, somewhat below its upper *Appendix*, and passing under the *Annular Ligament* of the *Tarsus*, in its progress along the upper part of the Foot, it inserts its self into the second Bone of the great Toe, in its upper part, and doth directly extend the same: Sometimes this Tendon hath been seen divided into two, one of which is inserted into the last joynt of the great Toe, the other into that *Os Metatarsi*, which lies under it.

This is shewn at Tab. XXXIV. Fig. II. laid bare, as also at Tab. XXXVI. Fig. I. and at Tab. XXXVII.

Flexor primi & secundi Internodii Pollicis.

This bends
the great Toe.

THIS ariseth sharp and fleshy about the middle of the back part of the *Fibula*, with a double Set of fleshy *Fibres*, marching along, then running themselves into a Tendon, as it passeth over the joynt, and after that through a Channel in the inner part of the *Os Calcis*, then is implanted to the upper end of the second Bone of the great Toe.

This is shewn at Tab. XXXV. Fig. I, II. and Tab. XXXVI. Fig. II. it is laid bare, and you have this also at Tab. XXXVII.

Ab.

Fig. 1

Fig. 2^a



Abductor Pollicis.

THIS takes its Name from its Use, it arising fleshy from the inner part of the *Os Calcis* laterally, and in its progress at the inside of the *Foot*, it becometh Tendinous, and joyneth with another fleshy Origination at the *Os Cuneiforme* both which making one Tendon, are inserted to the *Os Sesamoides* of the great *Toe*, drawing the great *Toe* laterally from the rest. *This brings the great Toe inwards.*

This you have at Tab. XXXIV. Fig. I. and at Tab. XXXVII.

Adductor Pollicis.

THIS ariseth partly Nervous, and partly fleshy, from the lower part of the *Os Cuneiforme*, and enlarging its self to a round fleshy Belly, it then grows less, and afterwards becomes Tendinous, Obliquely inserting its self to the latter, and inner part of the first Bone of the great *Toe*, bringing it towards the rest. *This brings the great Toe outwards.*

*This is shewn at Tab. XXXVI. Fig. II.
Tab. XXXVII. Fig. I, II, III, &c.*

Extensor Digitorum Longus.

THIS ariseth partly with a Nervous, and partly with a fleshy Beginning, from the upper *Appendix* of the *Tibia*, and then becoming fleshy, and joyning its self to the Ligament that ties the *Tibia* to the *Fibula*, it lessening its self in its progress along the *Fibula*, and passeth under the *Annular Ligament* of the *Talus*, where it divides its self into four Tendons, which do terminate in the upper part of the third or last joynt of the four lesser *Toes*, and the fifth of the *Os Metatarsi* of the other *Toe*, and is said to extend them. *This extends the third Joynt of the Toes.*

This you have at Tab. XXXIV. Fig. I. and at Tab. XXXVI.

Extensor Digitorum Brevis.

THIS ariseth broad and fleshy from the *Transverse Ligament* that covers the top of the *Foot*, and then dilating its self, is divided into four fleshy Portions, which afterwards are converted into as many Tendons marching over the first *This extends the 2d. Joynt.*

Internode of each lesser *Toe*, to their upper Insertions, and they are implanted to the upper part of the second *Internodes*, intersecting the *Tendons* of the former.

This you have at *Tab. XXXIV. Fig. I.* and at *Tab. XXXVI. Fig. II.*

Perforatus.

This bends
the Toes of
the Second
Joynt.

IT has its Name from its *Tendons* being perforated, and is also called *Flexor secundi Internodii Digitorum*, from its Use and Situation; it arising fleshy from the lower and inner part of the *Os Calcis*, and having marched half way through the Sole of the *Foot*, it doth divide its self into four fleshy parts, which afterwards do become so many *Tendons*, being cleft, or opened near their Terminations, for the Admission of the Entrance of the *Tendons* of the following *Muscle* towards their proper Insertions, these reaching no farther than the second *Internodes* of each lesser *Toe*.

This you have at *Tab. XXXV. Fig. I, II.* as also at *Tab. XXXVI. Fig. I, II.* and at *Tab. XXXVII. Fig. I, II.*

Perforans.

This bends
the Toes in
the 3d. Joynt.

IT hath its Name from its *Tendons* passing through the former, it arising fleshy from the back part of the *Tibia*, and then becoming *Tendinous*, is carried to the inward *Malleolus*, and running under the *Ligament* that proceeds from the lower *Appendix* of the *Tibia* to the *Os Calcis*, having arrived at half its progress through the Sole of the *Foot*, doth divide himself into four *Tendons*, which passing through the perforated *Tendons* of the former *Muscle*, doth terminate in the third Bone of every lesser *Toe*.

This you have at *Tab. XXXV. Fig. I.* laid bare, and at *Tab. XXXVII. Fig. II.* the same.

Lumbricales.

This bends
the Toes in the
first Joynt.

THEY are called thus from their Figure, they much resembling Earth-worms in their Make and Shape, as also *Flexores primi Internodii* from their Situation, they arising round and fleshy from the *Tendons* of *Perforans*, being in-

Fig. 1.

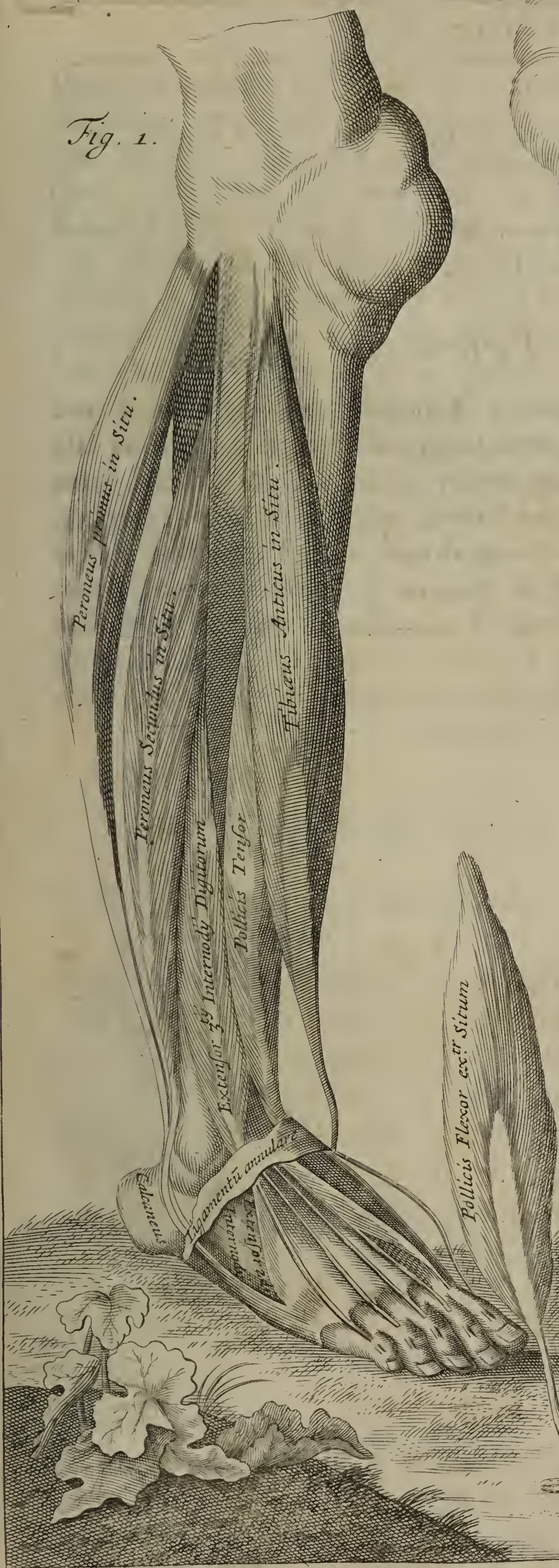
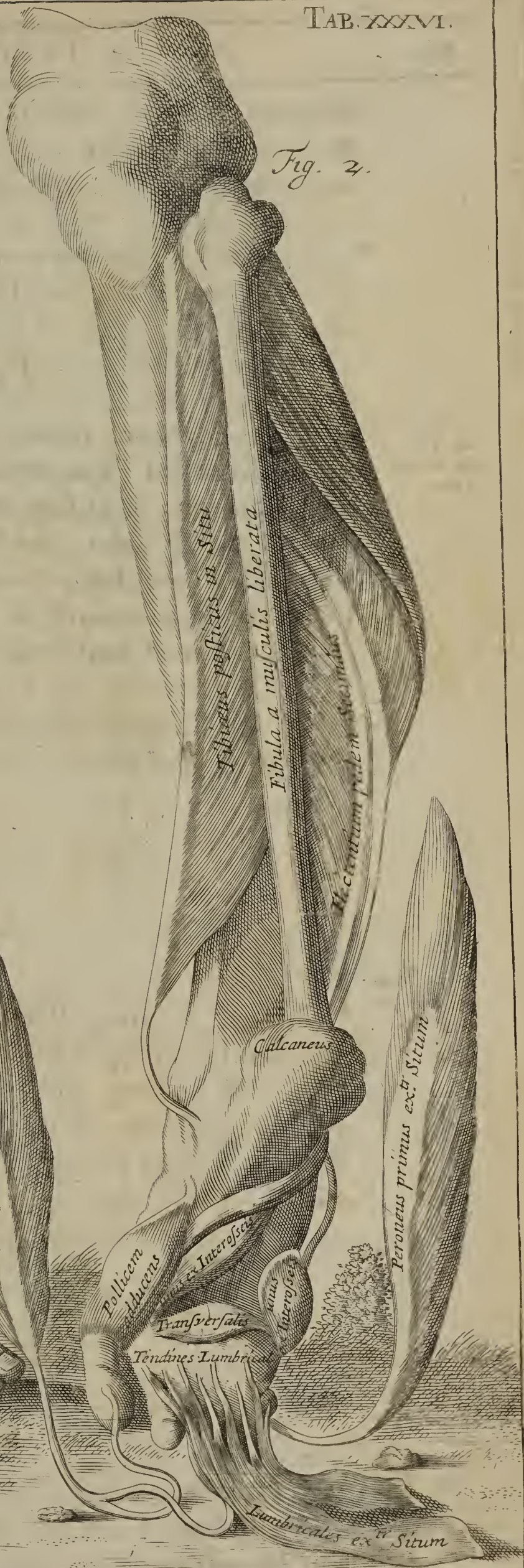
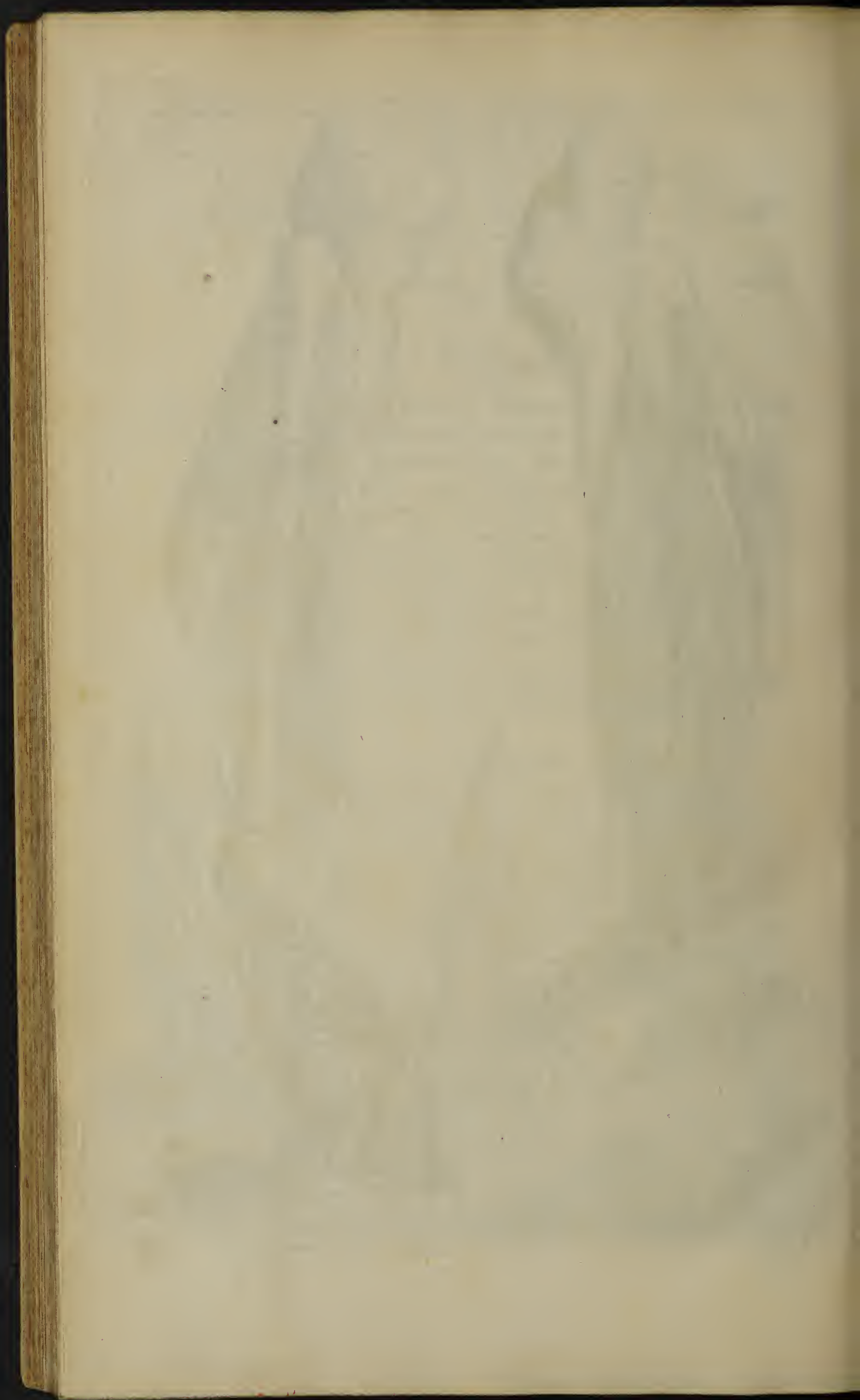


Fig. 2.





inwardly inserted by small Tendons into the first Joynt of the lesser Toes: But as I writ in my first *English Book* on this Subject, who ever well doth examine their Originations, may rather suppose, that they have their fleshy Substance arising from a *fleshy Mass* apparently found in the Sole of the Foot, or from that *Musculous* flesh which is implanted in the inner Cavity of the *Os Calcis*; it there appearing *fleshy* near half the Sole of the Foot, so that Mr. *Comper's* Supposition (as he would perswade us it is his own) touching the Origination of this *Muscle*, is not so, but was long before he appear'd abroad, the opinion of others, that it was most likely, these *Muscles* did take their Origination from this *Mass* of flesh there planted, as aforesaid in the Sole of the Foot; then it becoming Tendinous; and afterwards dividing its self into four distinct parts, does then become Tendons at their insertions to the lesser Toes laterally.

*This you have at Tab. XXXVI. and at
Tab. XXXVII. Fig. I, II.*

Abductor Minimi Digiti.

THIS ariseth outwardly Nervous, and inwardly fleshy from the outward part of the *Heel-Bone*, and having attain'd half its Progress, it becomes Tendinous on the outside of the Foot, and there joyning with its other fleshy part, which hath its Origination from *Os Metatarsi* of the little Toe, where they do make but one Tendon, and are inserted into the first Bone of the little Toe at its outside laterally.

*This brings
the Little Toe
from the rest.*

*This you have at Tab. XXXIV. Fig. I. Tab. XXXV.
Fig. II. Tab XXXVII. Fig. I, II. &c.*

Transversalis Pedis.

THIS doth take its Name from its transverse Origination, and doth arise Tendinous from the *Os Sesamoides* of the great Toe inwards, and then growing fleshy is transversely carried over the first Bone of the great Toe, it bringing its lesser Toes towards it.

*This brings
the Lesser Toes
towards the
Greater.*

B b

The

The *Author* of this *Muscle* doth assign it this Use, that upon drawing our great *Toe* towards our lesser ones, we do make a hollownes in the *Foot*, the better for securing our *Feet* in uneven places, this making our steps more steady, it being framed as a *Ligament* to it, to keep it from sliding aside, by drawing the *Metatarsæ* and *Toes*, and fixing them to the *Floor*, which being assisted by *Tibialis Anticus*, and *Peronæus Secundus*, which moving singly, the one carrieth the *Foot* outwards, and other inwards; but when acting together, the *Tibialis Anticus* keepeth the *Foot* from treading outwards, and the *Peronæus Secundus* hindring it from casting inwards, whilst this is held to give it a Steadiness in binding or bracing down the first *Internode* of the Bone of the *Toe* like a *Ligature*; so that the line of Gravitation being carried from one Limb to another, supporteth the weight of the Body, in order to a new Step in progressive Motion, in which the hinder Limb becometh the Fore, and the Fore the hinder, which hath a double Carriage in order to Motion.

This you have at Tab. XXXIV. Fig. I. and at Tab. XXXVI. Fig. II. and at Tab. XXXVII. Fig. I, II.

Interossei Pedis.

*This moves
the Foot Ob-
liquely.*

THESE have their Names from their Situations, amongst the Bones of the *Toes*, they arising fleshy from the sides of the Bones of the *Metatarsæ* of the lesser *Toes*, and becoming round bellyed, do grow *Tendinous* at their Insertions, to the first *Internode* of every lesser *Toe* laterally.

These you have at Tab. XXXIV. Fig. I. where you have Two of them, and at Tab. XXXVI. Fig. II. Two others, and at Tab. XXXVII. Fig. I. Two others, and at Fig. II. Four together, and at Fig. III. both the Four Adductors and Abductors, and the Two *Interossei* of the Great *Toe*, and after this, every one shewing themselves apart.

F I N I S.

Fig. 1.



Fig. 2.

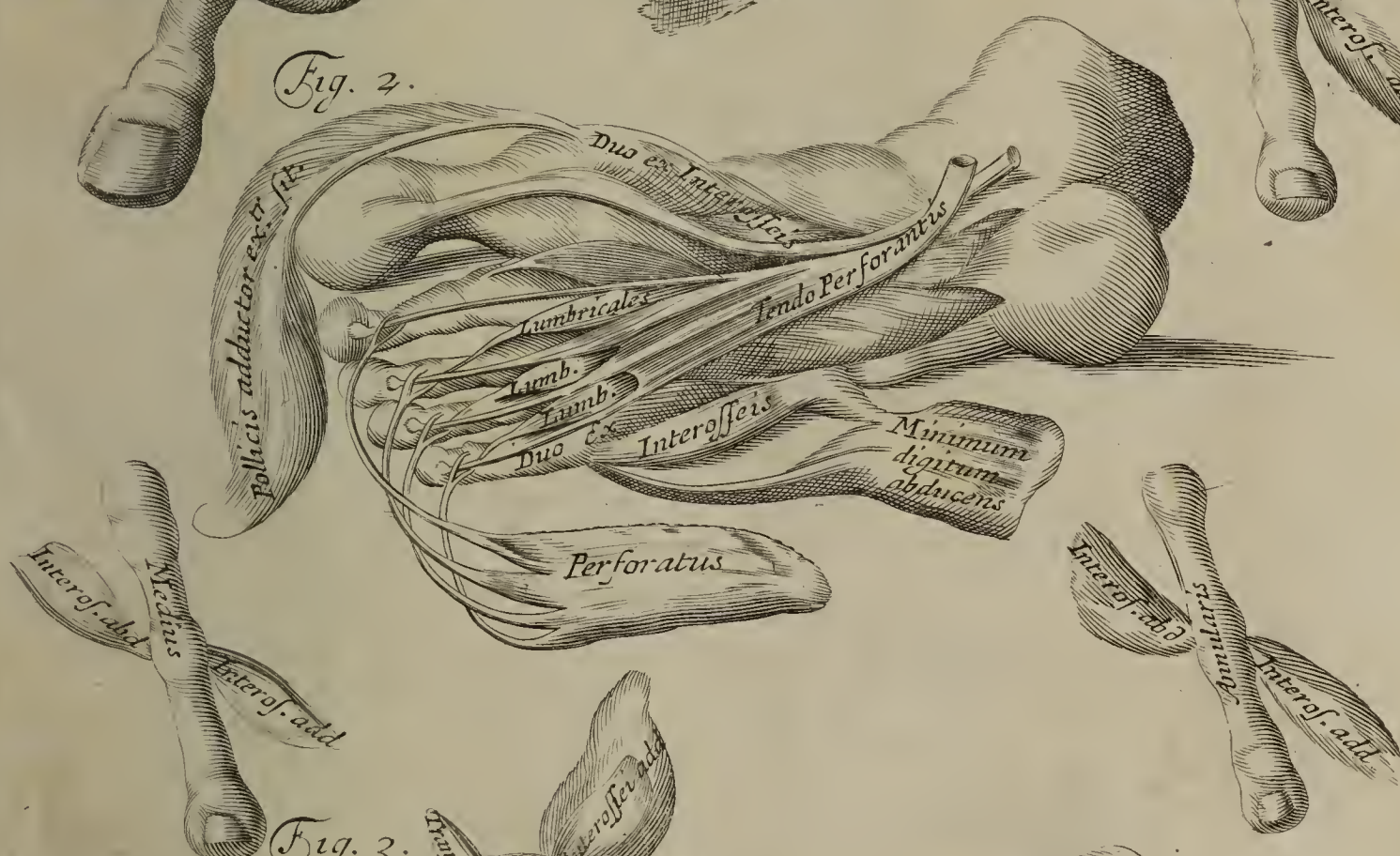
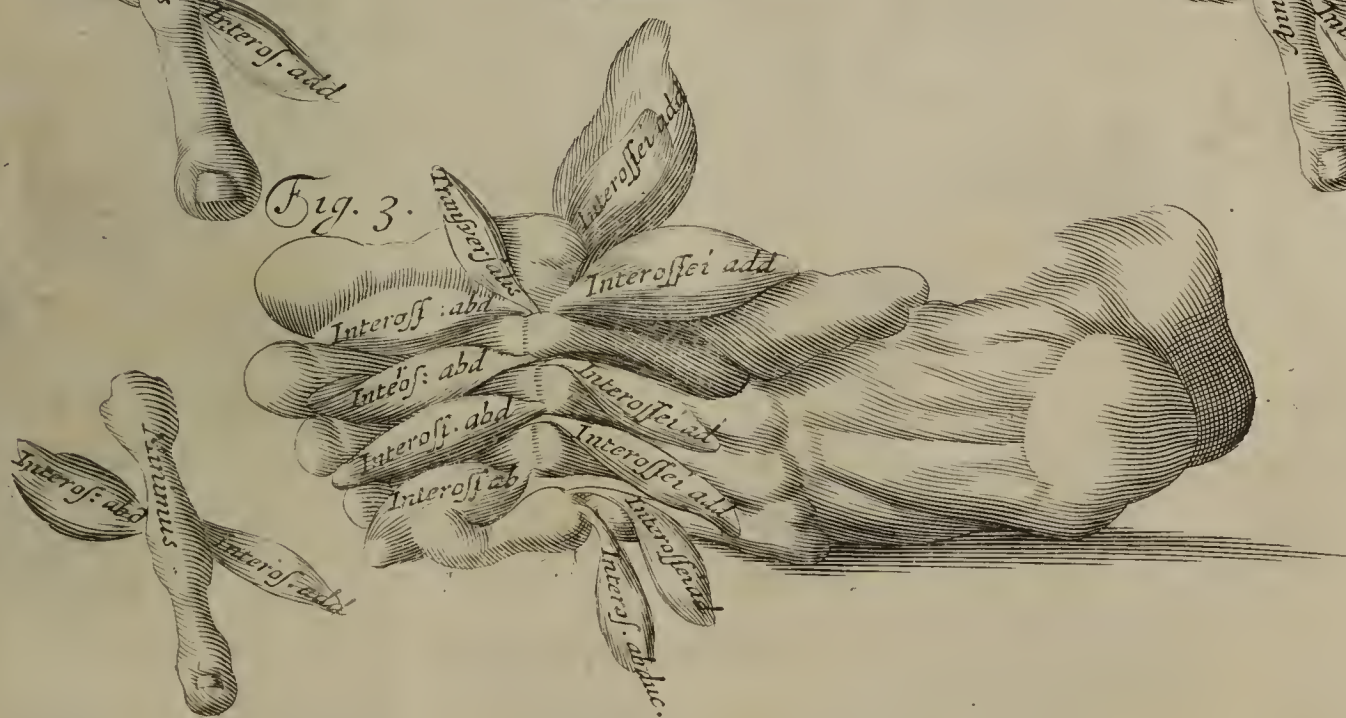
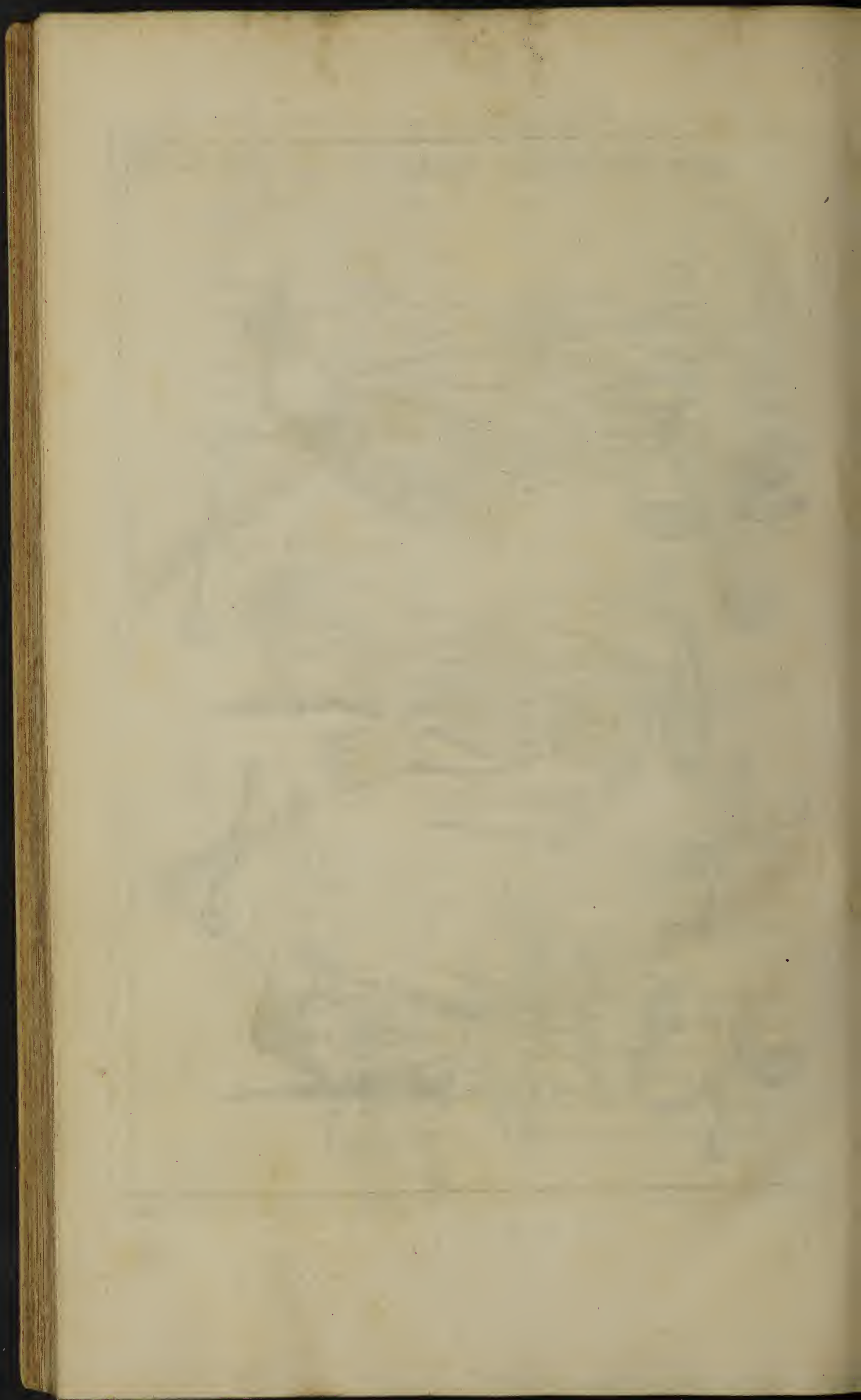


Fig. 3.





THE Forehead is lifted up by Frontalis.
The Hairy Scalp is drawn backwards by Corrugator and Occipitalis.

THE Forehead is lifted up by Frontalis.

The Hairy Scalp is drawn backwards by Corrugator and Occipitalis.

The Eyebrows, { *Lifted up by Elevator Palpabræ,*
Depressed by Claufor Superior,
The Nether is lifted up by Claufor Inferior.

The Eyes
are

<i>Rightly moved</i>	{ Upwards by Elevator, Downwards by Depressor, Inwards by Adductor, Outwards by Abductor,
<i>Obliquely</i>	{ Downwards outwardly by Obliquus Minor; Upwards internally by Obliquus Major.

The Nose $\left\{ \begin{array}{l} \text{Dilated by} \\ \text{Contracted by} \end{array} \right. \left\{ \begin{array}{l} \text{Elevator,} \\ \text{Dilatator,} \\ \text{Constrictor.} \end{array} \right.$

The Lips are { *Elevated by Elevator,*
Drawn sideways by Abductor,
Brought downwards by Depressor,
Pursh up by Sphincter Labiorum.

The Cheeks are { Drawn down by *Platysma Myodes*, or *Quadratus*;
Drawn inwards by *Buccinator*, or *Constrictor*.

*The Nether Mandible
is drawn*

*Upwards by Temporalis, or Crotaphites,
Downwards by Digastricus, or Graphoides,
Laterally by Masseter,
Forwards by Pterygoideus Externus,
Backwards by Pterygoideus Internus.*

The Ears are Moved	{	Externally	{	Upwards by Elevator,
				Downwards by Depressor,
				Forwards by Adductor,
				Backwards by Abductor,
		Internally	{	by Externus, or Laxator Externus,
				by Internus, or Laxator Internus

	<p><i>The Tongue is</i></p> <p><i>Moved</i></p>	<p>{</p> <p>{</p> <p>{</p> <p>{</p> <p>{</p>	<p><i>In Constriction</i></p>	<p>{</p> <p>{</p> <p>{</p> <p>{</p> <p>{</p>	<p><i>by Lingualis,</i></p>
			<p><i>In Dilatation</i></p>		<p><i>Forwards by Geneioglossus,</i></p> <p><i>Backwards by Hypsioglossus,</i></p> <p><i>Upwards by Myloglossus,</i></p> <p><i>Downwards by Ceratoglossus,</i></p> <p><i>Laterally by Styloglossus,</i></p>

*The Os Hyoidis
is Moved*

Rightly { *Upwards by* { Mylohyhoideus,
Geneiohyoideus,
Downwards by Sternohyoideus,
Obliquely { *Upwards by* Styloceratohyoideus,
Downwards by Coracohyoideus.

The Palate is { *Attolled by* Spænopalatinus,
 { *Depressed by* Pterygopalatinus.

The Fauces are { *Dilated by* { Sphænopharyngæus primus,
 { Sphænopharyngæus secundus,
 { *Contracted by* { Oesophagæus,
 { Cephalopharingæus,
 { Stylopharingæus.

The Larynx is { *dilated* { *when the* { *Extended by* { Sternothyroideus,
 { Thyrois { *Contracted by* { Crycoaritenoides Lateralis,
 { *is* { Hyothyroideus,
 { *shut* { *while the A-* { *Contracted* { *Directly by* Thyroarytænoides,
 { rytenois is { *Obliquely inwards by* Arytænoides,
 { *opened* { *Extended* { *Rightly by* Crycoarytænoides Posticus,
 { *Obliquely laterally by* Crycoarytænoides
 Lateralis.

The Head is { *Contracted by* { Mastoidæus, *if both move* ;
 { *Laterally, if but one move* ;
 { *Extended by* { Splenius, or Triangularis,
 { Trigemini,
 { Recti Majores,
 { Recti Minores.

Turned about by { Obliqui Superiores,
 { Obliqui Inferiores,

The Neck is { *Contracted by* { Longus,
 { Scalenus,
 { *Extended by* { Transversalis,
 { Spinatus,

The Thorax is { *Primarily by his* { *Dilate in* { *Freely the Diaphragme alone con-*
 { *Proper Muscles,* { *Breathing* { *tracted,*
 { *which do* { *Coactively the Diaphragme and*
 { *Constringe in* { *outward Intercostal Muscles.*
 { *Breathing* { *Freely the Diaphragme alone re-*
 { *laxed,*
 { *Coactively the Diaphragme and*
 { *Internal Intercostals,*
 { *Extended by* { Latissimus Dorsi, { *which are* { Serratus Minor, } *postici.*
 { Semispinatus, { *retain'd in* { Serratus Major, }
 { Sacrolumbalis, { *place by* {
 { *Contracted by* { Musculi Recti, } *Abdominis,*
 { Obliqui Ascendentes, }
 { *Turned about by* Transverii,
 { *Secondarily by the* { *Contracted by* Quadratus,
 { *Lumbal Muscles* { *Extended by* Sacer.

The Abdomen is Compressed	{	Laterally	{	Obliqui Descendentes,	
		by		Obliqui Ascendentes,	
		Forwards	by	Recti,	
The Loins are	{	Downwards	{	Pyramidales, or sometimes by	
		by		Transversi,	
The Testicles are raised by Cremasteres,	{	Contracted	by	Quadratus,	
		Extended		Sacer,	
The Bladder	{	Retains	by	Sphincter Vesicæ,	
				{	Detrusor Urinæ,
					Pyramidales,
The Clitoris is	{	Excreates	by	Obliqui Ascendentes Abdominis.	
The Anus is	{	Raised	by	Musculi Graafiani,	
		Depressed		Musculus Labiorum Uteri Contractor.	
The Penis is improp- erly said to be	{	Pursed up	by	Sphincter Ani,	
		Elevated		Levatores Ani.	
The Scapula is moved	{	Erected	by	Erectores, or Directores,	
		Accelerated		Acceleratores.	
The Os Humeri is moved	{	Variously	by	Cucullaris,	
		Upwards		Levator Patientiæ,	
		Backwards		Rhomboides,	
		Forwardly upwards		Serratus minor,	
		Forwardly downwards		Serratus major,	
The Cubite is	{			{	Anticus,
		Forwards	by		Pectoralis,
		Upwards	by		Deltoides,
		Downwards	by		Octavus Humeri Placentini,
					Rotundus,
The Radius is	{	Is carried about towards the	{	External Part by	Superfascularis Superior,
					Superfascularis Inferior,
					Nonus Humeri Placentini,
The Carpus is	{			{	Internal Part by Subscapularis.
The Cubite is	{	Extended	by	Gemellus Major,	
		Contracted		Gemellus Minor,	
The Radius is	{	Contracted	by	Biceps,	
				Brachixæus.	
The Carpus is	{	Pronated	by	Quadratus,	
		Supinated		Teres,	
The Cubite is	{	Contracted	by	Longus,	
				Brevis.	
The Carpus is	{	Contracted	by	Flexor Carpi Exterior,	
				Flexor Carpi Interior,	
The Cubite is	{	Extended	by	Extensor Carpi Exterior,	
				Extensor Carpi Interior,	
The Carpus is	{	Contracted	by	Flexor Primi,	
				Flexor Secundi,	
The Cubite is	{	Contracted	by	Flexor Tertii,	
				Internodii;	
The Fingers are	{	Extended	by	Primus,	
				Secundus,	
The Fingers are	{	Extended	by	Interossei,	
				Extendentium Digitorum.	

The Thumb is	Moved Laterally by	{ Interossei, Abductor Minimi, Abductor Indicis.
	Contracted	{ First ly { Flexor primi Internodii, Flexor secundi Internodii, Secondly ly { Primus, Secundus, } Flexores Internodii; Tertius, Quartus,
		Thirdly by Tertii Internodii Flexor,
		Extended by { Extensor primus, Extensor secundus,
	Moved { Laterally internally by Adductor, Outwardly by Abductor.	
The Thigh is	Extended Obliquely { Backwards by Glutæus Major, Forwards by Glutæus Medius and Glutæus Minor;	
	Contracted { Directly by { Psoas Magnus, Iliacus Internus, Obliquely by { Triceps, Lividus,	
		Moved about { Upwards by Pyriformis, Inwards by Obturator Externus, Outwards by Obturator Internus, Backwards by Quadrigimimus, or Quadratus.
	The Leg is	Contracted by { Sartorius, Gracilis, Seminervosus, Semimembranosus, Biceps,
Obliquely moved by Subpoplicæus.		
The Ankle		is Extended by Gasterocnemius { Externus, Internus,
	Contracted by { Tibialis Anticus, Peronæus secundus,	
	Moved Obliquely Lateral { Internally by Tibiæus Posticus, Externally by Peronæus primus.	
The Four Lesser Toes are	Contracted by { Perforans in the Third Lumbricales in the First } Joynt Perforatus in the Second	
		Extended by { Interossei in the First Joynt, Secundi Internodii Tensor, Tertii Internodii Tensor,
	Obliquely moved by { Interossei, Minimi Digiti Abductor.	
The Great Toe is	{ Contracted by Flexor, Extended by Tensor, Obliquely moved by Abductor.	
The First of the Toes are kept together by Transversalis Placentini.		
The Skin	{ Of the Sole of the Foot is moved by Plantaris, Of the Palm of the Hand, by { Palmaris, Caro Musculosa Quadrata.	

An Appendix

O F

The H E A R T, and its U S E: With the C I R C U L A T I O N of the B L O O D, and the P A R T S of which the *Sanguinary Mass* is made, &c.

THE Great *Architectonical* Use of this Principal Part, is to convey the Blood to every Part of the Body, for the vivifying and nourishing of the whole, which you shall be best able to understand, when we shall have declared the Manner of this Conveyance, and the Nature of that which is convey'd.

We shall therefore first begin, with shewing the certainty of the truth of the *Circulation* of the *Blood*, wrought by the Motion of the *Heart*, then shall declare what the Nature of *Blood* is, of what parts its *Mass* doth consist, how it warms and nourisheth the whole, and consequently in what Life is properly said to consist: The Action and function of every part being best understood by its natural Figure, Frame and Constitution.

That therefore we may demonstrate the proper Operation of the *Heart*, We must curiously observe the Parts and Vessels belonging to it, and not only of the *Heart*, but of the *Lungs* also, which for this purpose are fastened to it, and therefore ought to be considered with it: Neither do I think there hath been any greater reason of the long Concealment of the *Circulation*, from the Discovery and Knowledge of man, than the looking upon the *Heart* and *Lungs* as parts of distinct Concernments; for altho' the *Circulation* be as true, and sometimes more manifest in such Animals as have no proper *Lungs* fastned to the *Heart*, as in *Fishes*: Yet in those Animals with *Lungs*, there can be no accurate Consideration of the *Heart*, without them; because there is no Communication of one *Ventricle* of the *Heart* with the other, but by and through them: Let us therefore first consider the Frame and Structure of the *Heart*, together with the *Vessels* disse-

D d

minated

minated through the *Lungs*, which are affixed and implanted into it.

The *Heart* of its self is a firm *Muscular*; that is, a fleshy and fibrous part, not wholly solid, but having two Cavities allowed it, commonly called the *Right* and *Left Ventricles*; again, being the Orifice of the *Vena Arteriosa* is immediately fastened to the same right *Ventricle*, and the *Valves* planted in the Orifice of this Vessel, are properly framed and adapted for the Admission of any thing out of this *Ventricle*, and hindring the return of any thing into it: Therefore is it most evident, that the *Blood* which passed out of the *Cava* into the right *Ventricle*, should pass out of this *Ventricle* into the *Vena Arteriosa*.

Thirdly, Being the Orifice of the *Arteria Venosa*, is fastened by the left *Auricle* to the left *Ventricle* of the *Heart*, and the *Valves* planted in that *Ventricle*, are framed for the Admission of any thing that comes that way, and hindring all Regurgitation backwards: It is likewise here evident, that out of the very Frame and Contexture of the part, that what *Blood* passeth out of the *Right Ventricle*, through the *Vena Arteriosa* into the *Lungs*, should also pass out of the *Lungs*, through the *Arteria Venosa*, into the left *Ventricle* of the *Heart*.

Lastly, Being the Orifice of the *Arteria Aorta*, or Great Artery is immediately affixed to the left *Ventricle*, and the *Valves* implanted in it, are so framed on purpose to admit any thing out of the *Ventricle* into the *Artery*, and to hinder all passage out of the *Artery* into the said *Ventricle*, it is likewise most evident, that what *Blood* passeth out of the *Arteria Venosa* into the left *Ventricle*, be conveyed out of the left *Ventricle* into the *Aorta*, or great Artery: And thus have we clearly brought the *Blood* out of the *Vena Cava*, thro' most manifest open Channels, framed by Nature her self, through the *Ventricles* of the *Heart*, and the *Vessels* of the *Lungs*, into the great Artery or *Aorta*.

That the *Blood* may thus march, and that Nature design'd it should do so, is hence sufficiently shewn even from the Construction of the Parts; and that it must necessarily do so, and that it actually goes this round, is next further to be demonstrated.

At every *Pulse* of the *Heart*, there is a small quantity of *Blood* forced out of the left *Ventricle* into the *Aorta*; and
this

this is manifest by most certain Experience, now the *Pulses* of the *Heart* are so many, and the quantity of *Blood* so considerable that is expelled, that it cannot be denied; but there is in less space than an hour, more *Blood* sent out of the left *Ventricle* into the *Aorta*, than the quantity of the whole Mass of *Blood* in the body amounts to; but whatsoever cometh into the left *Ventricle*, must come out of the *Arteria Venosa*, and whatsoever comes out of the *Arteria Venosa*, must first come through the *Vena Arteriosa*, whatsoever passeth through that, must first come out of the *Right Ventricle*; and whatsoever comes thence, must have its passage from the *Vena Cava*, as we have before demonstrated out of the Frame of the Parts: Therefore, *à primo ad ultimum*, whatsoever quantity of *Blood* cometh into the *Aorta*, must consequently come out of the *Cava*, but a quantity exceeding the whole Mass of *Blood* cometh into the *Aorta* in the space of an hour, therefore the same *Blood* must return out of the great *Artery* into the *Vena Cava*, which is the Circulation we mentioned, and which we contend for. And thus far for the truth and certainty of it: Now follows the manner of this Circulation.

And altho' the Manner and Nature of Circulation, (as the Circle its self) admits of no beginning; yet for *Doctrin's* Sake, we must begin somewhere, and for *Perspicuity's* Sake, we shall begin where motion doth last appear at the left *Auricle*.

The *Blood* in the *Vena Cava*, is by the *Right Auricle* forced into the *Right Ventricle* of the *Heart*; the *Heart* by its *Systole* or *Contraction* forceth the *Blood* out of the *Right Ventricle*, into the *Vena Arteriosa*; by Virtue of which Stroke, it passeth through the Branches all over through the Body of the *Lungs*, and so into the Branches of the *Arteria Venosa*, through which it is conveyed to the left *Auricle*, each of these *Ventricles* having two large *Vessels* annex to it; one by which it receives, the other by which it dischargeth the *Blood*.

The *Right Ventricle* hath immediately fastned to it, the right *Auricle*, which is as it were the extremity of the *Vena Cava*; by which the *Blood* is constantly conveyed into it, besides which, it hath a large Orifice of the *Vena Arteriosa* annex to it, by which it dischargeth the *Blood* into the *Lungs*, which it received from the abovesaid *Auricle*: In like Manner the left *Ventricle* hath annex to it the left *Auricle*, which

is as it were the Extremity of the *Arteria Venosa*, thro' which it receives the *Blood* out of the *Lungs*; besides which, it hath a large Orifice of the *Aorta* annexed to it, by which it dispenseth and dischargeth into the *Arteries* all the *Blood* which is received from the *Lungs*; but the use of all these *Vessels* will more clearly appear, if we consider the strange Artifice of certain *Valves*, or little *Flood-gates* planted at these their Orifices.

These *Valves* are of two sorts, *Tricuspidal*, and *Sigmoidal*; the *Tricuspidal Valves* being planted in the *Ventricles* for the Admission of *Blood* into the *Heart*, and hindring its *Reflux* into the *Veins*. The *Sigmoidal* are planted in the *Arteries* for the Admittance of *Blood* out of the *Ventricles* into the *Arteries*, and preventing its return out of the *Arteries* into the *Ventricles*.

Having thus considered the natural Frame and Structure of *Ventricles*, *Vessels* and *Valves*; we shall now more easily demonstrate the *Circulation* of the *Blood*, and how it is naturally performed. The first Way being the *Vena Cava* by the *Right Auricle* to the *Right Ventricle* of the *Heart*, and the *Valves* planted in the *Ventricle*, are tramed for the Admission of any thing into it, and preventing all *Regurgitation* back. Therefore it is most evident, even from the very Frame of the part, that the *Blood* passeth out of the *Vena Cava* into the *Right Ventricle* of the *Heart*, and is thence dispersed and dispatcht into the left *Ventricle*, from whence by the *Hearts* Contraction, it is forced into the *Trunk* of the great *Artery*, and by the *Branches* of that *Artery*, into the whole *Habit*, and all the parts of the *Body*; in all which parts there being *Extremities* of *Veins*, answering to the *Extremities* of the *Arteries* in the same manner, as the *Extremities* of the *Arteria Venosa* does answer the *Extremities* of the *Vena Arteriosa* in the *Lungs*.

The *Blood* is conveyed out of the *Capillary Branches* to the *Arteries* into the *Capillary Branches* of the *Veins*; and through these into the larger *Vessels*, till it arrives at the *Trunk* of the *Vena Cava*, whence it is sent back again into the *Right Ventricle* of the *Heart*; from thence thro' the *Lungs* into the left *Ventricle*, and so into the *Aorta*, and so about perpetually; and this is the manner of the *Circulation*: And thus have we absolved the first part of our *Discourse*.

In the second part, we are to consider the Nature of that which is thus circulated, and the end of *Circulation*, which is the *Life* of the whole. That

That which is thus circulated, we commonly call the Mass of Blood, which I shall not distinguish with the *Ancient Physicians* into the four Humours; but rather content my self with that Division Nature her self maketh, when the Blood is out of the Body. In the Body of a sound Man, take what quantity you please away by *Phlebotomy*, and let it stand some few hours, and in it you will find two distinct Substances, of different Colours, Tasts, Qualities and Operations; the one a dark, and turning towards black; the other of a darkish white, or watery Colour. These two in the Blood, were blended and mingled together, insomuch that all the *Whitish Liquor* was in a manner absorbed with the *Tincture* of a Deep Red; of these, one is said and allowed to be the proper Substance of the Blood; the other the *Chyle*, preserved in the Blood; prepared by it, and circulated with it, for the Nourishment of every part: And that it is of this nature, is evident; because, set it upon the fire, and it will not evaporate, as does the *Serum*, or the *Urine*, but will rather coagulate, and grow to the Substance of the same Consistence, Smell, and Taste, with the white of a roasted Egg; which is the true Con-natural Nourishment of the parts, whose Colour and Constitution are the same.

This *Succus Nutritius*, mingled, warmed, and subtilized by the Blood, so much as is necessary for preservation of the Blood, is *sanguified* (that is) is conveyed into the Substance of Blood, the rest is conveyed with the Blood to the Extremities of the *Arteries*; and so past to the Habit of the Body in every part; which taking into it so much as is to be assimilated to the part, sends the rest with the Blood into the *Capillary Veins*, and so thro' the Great *Vessels* to the Heart, to be conveyed in the same Manner for the further Nourishment of the parts. The other part of the Mass, is the Blood its self, the Fountain and Original of Life, the *Primum Vivens*, and the *Ultimum Moriens*. This from its beginning having Life in its self, by the Addition of this *Nutritional Juice*; and without which, the *Artificer* can do nothing becoming the *Architect*, of his own House and Frame; every part being fitted for its own Reception and Habitation: Now as this hath a *Local Motion* by Way of Circulation, by which it provides for the Circulation of the parts, so hath it also a *Vital* one, by which it preserves its self.

This Vital Motion is a constant Fermentation or Working of the Blood, by which all the most Minute parts are secretly

divided, for the Reception of what is proper for it; and Expulsion, Amandation, and casting off whatever is obnoxious or injurious to it; but this secret Agitation of its self, and *Atomical* Division of the *Minimæ Particulæ* preserves it in its usual Vigour, and so long as its Fluidity continues, as the proper Effect of this its Vitality, it becometh brisk and lively, it causing the lively part of the *Blood* to nourish and cherish the whole.

But alas, this Life is not immortal! Nor can the *Great Architect*, according to second Causes, make such a House as shall never fall on its own Head, since that by which he first builds, and afterwards repairs, is nothing else but the *Nutritional Juyce*, Liquor, or moist Substance which is mingled, and as it were incorporated with the Blood, which must intimately penetrate and enter the Part which it is to Nourish: Now the Parts of the Body made and kept up by it, are so long capable of Increase and Nourishment, as they continue in them a Consistence fit to receive such a Moisture, and no longer: And whereas the Bones at first were both moist and supple, as were other Parts, which by length of time grows to such a Stability, Firmness, and consequently, Dryness, that they do not admit any longer *Nutritional Juyce* into them, or their proper Substance, whereby they seem to obstruct and hinder the further Growth of the Animal; and for the future, they stand in the Body more like Timber in a House, than as Trees in the Ground, as they formerly did; so other Parts of the Body after Full Age, do grow somewhat dryer and closer, and so consequently do make a greater Resistance towards their own Nourishment: For when the Skin, by reason of its Propinquity to the Air, do first grow dry, close, and shrivell'd, as we see in Decrepit Old Age: So we may also conceive that the Membranes of all the inward Parts proportionally do the same: And therefore, the *Blood* moving about to every Part, does not find an admittance for that Dew of Life which it carries along with it; and yet so long as the *Blood* does move, there is said Life still to remain in it, although nothing else could be so said to live but its self.

But at the last, even the *Blood* its self fails of the quickness of its Vital Motion, and not being longer able, nimbly to relieve its self by a subtile Division of its parts; it at length becomes fibrous, and gets into its self a kind of dryness, which
makes

makes it unfit and incapable of receiving its own Nourishment; and for want of its Vital Fermentation it formerly enjoyed, it grows more dry and more firm, it not admitting into it, its former Liquidity, to resolve or bedew its parts; whereby it becomes so fibrous, as not to allow them any further Capacity of making use of their own proper *Menstruum*: So that upon the failure of this *Vital*, the *Local Motion* must consequently cease, whereby all the parts become deprived of their Vital Influence: Whence follows a natural Death.

Thus have I humbly dispatch'd the Second Part of the Discourse concerning the Nature of the *Mass of Blood*, and that wherein *Vitality* its self consists, by which at last we clearly understand the great Use and Function of the *Heart*.

And seeing all the Parts do receive their *Vital Influence* from the *Blood*, and this *Blood* (the Seat of Life) serves its self by its own *Vital Motion*; and seeing this *Blood* cannot constantly be transmitted into the Parts, but by *Local Motion*, and this Motion cannot be continued but by a Forceable *Impulse*, therefore *Nature* must of necessity make some part of the Body to drive it forwards, which Part must necessarily have some Cavities belonging to it, or allow'd it, First to contain; then, some Vessels to receive, as does the Cistern and Pipes; and Thirdly, Strength to propel or drive out: And such a Part as this, in every respect is the *Heart*, which is Furnished with *Ventricles* to contain, with Vessels annex to it, to Convey and Receive, and with a Firm *Muscular Body*, to propel the *Blood*. Thus the Action of the *Heart*, is its proper Contraction by which it makes way for the Propulsion or driving forward of the *Blood* for its Use, and a constant *Circulation*, as also for the Vivifying and Nourishment of the whole Body.

This Accurate and Concise Discourse of the Heart, and its Use, as also of the Circulation of the Blood, and the Parts of which the Sanguinary Mass is made, was Written by the Late Learned Dr. Lower, and Presented to a Person of Quality, who was pleased to favour me therewith, in order to have it added to this my Graphical Discourse of the Muscles.

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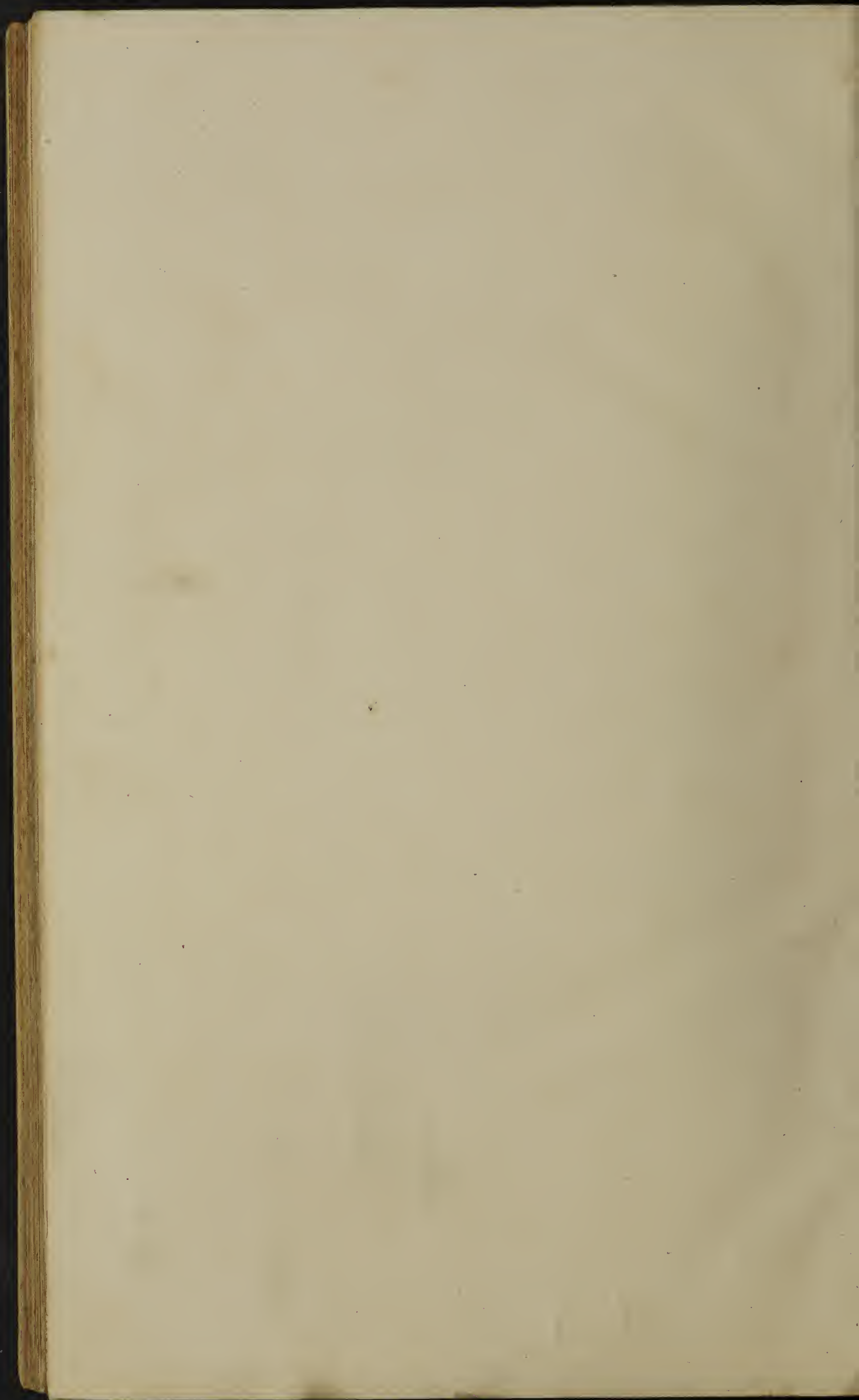
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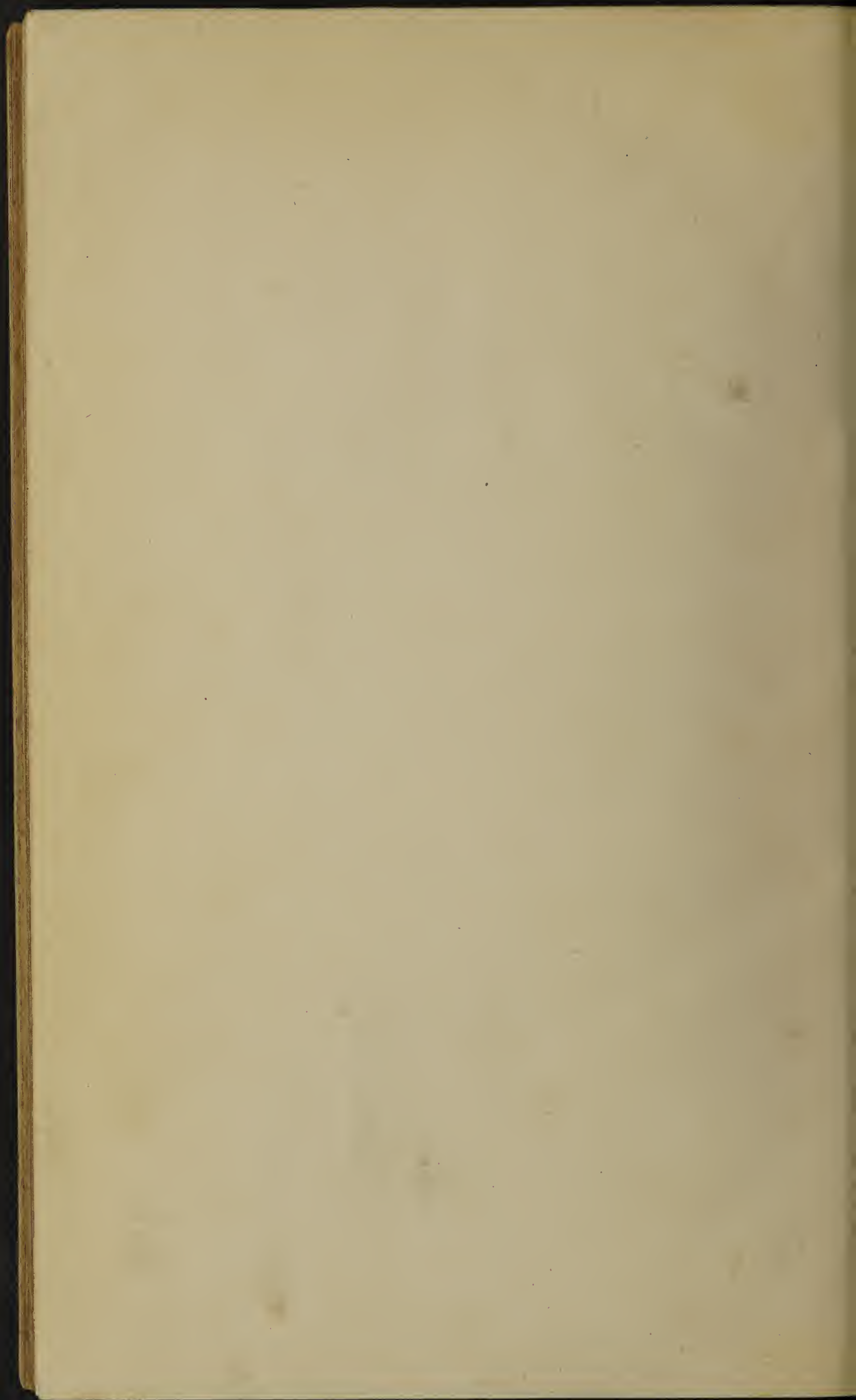
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